

TPW MK3 Wide Range Bladder Tank Proportioner

Description

SKUM TPW MK3 wide range proportioning systems function by metering foam concentrate into the water supply line. Upon system actuation, incoming water applies pressure to the concentrate in the bladder, which supplies pressurized concentrate to the proportioning device. The foam-water solution is then piped to the discharge devices in the hazard area.

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 in 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. This causes 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.

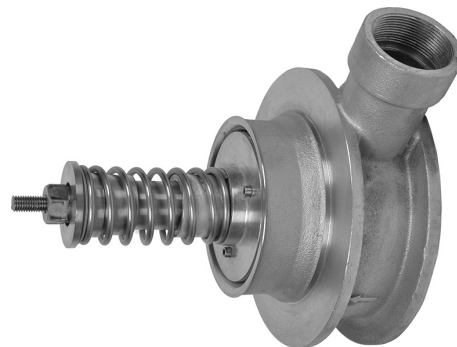
Each proportioner consists of the following components:

- Cast bronze body
- Bronze 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.

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 87 Lpm (23 gpm)
- Compatible with lower cost bladder tank foam-water sprinkler systems
- Less total system hardware and maintenance requirements with minimal moving parts and no electrical hookup requirement



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Approvals and Listings

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

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

Note: SKUM TPW 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 TPW MK3 Wide Range Proportioner is FM Approved for use with SKUM AFFF 3% UG and SKUM ARC 3x3 UG foam concentrates. See the system specifications section on page 4 for other SKUM foam concentrates that have been tested for use with this proportioner.

Use the SKUM TPW MK3 proportioner only with bladder tank systems. See the system specifications section on page 4 for the equivalent lengths that the proportioners may be installed at from the bladder tank. This equivalent length calculation does not require the normal swing check, concentrate isolation, or hydraulic valves.

The SKUM TPW 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 from 87 Lpm (23 gpm) to 20,376 Lpm (5383 gpm) with a maximum working pressure of 16 bar (232 psi).

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

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Application (Continued)

NFPA 30:2015 Chapter 16 requires correctly proportioned foam solution to generate 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 TPW MK3 Wide Range Proportioner allows the correct proportioning of foam across a wide design range for a system.

Ordering Information

<u>Part Number</u>	<u>Foam Agent</u>	<u>Approvals</u>
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SKUM TPW 6 in. MK3 with 2 in. BSP (Female) foam inlet

124515205A	3% AFFF	FM
124515205C	3x3 AR-AFFF	FM
124515205E	2% HOTFOAM	–
124515205B	1% AFFF	–
124515205F	3% Fluoroprotein	–

SKUM TPW 6 in. MK3 with 2 in. grooved foam inlet

124515212A	3% AFFF	FM
124515212C	3x3 AR-AFFF	FM
124515212E	2% HOTFOAM	–
124515212B	1% AFFF	–
124515212F	3% Fluoroprotein	–
449716	ANSULITE A336 USCG 3x3 AR-AFFF Concentrate	UL and USCG
454681	NFF 3x3 UL201	UL

SKUM TPW 8 in. MK3 with 2 1/2 in. BSP (F) + 3 in. grooved foam inlet

124520206A	3% AFFF	FM
124520206C	3x3 AR-AFFF	FM
124520206E	2% HOTFOAM	–
124520206B	1% AFFF	–
124520206F	3% Fluoroprotein	–
449717	ANSULITE A336 USCG 3x3 AR-AFFF Concentrate	UL and USCG

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

124525211A	3% AFFF	FM
124525211C	3x3 AR-AFFF	FM
124525211E	2% HOTFOAM	–
124525211B	1% AFFF	–
124525211F	3% Fluoroprotein	–

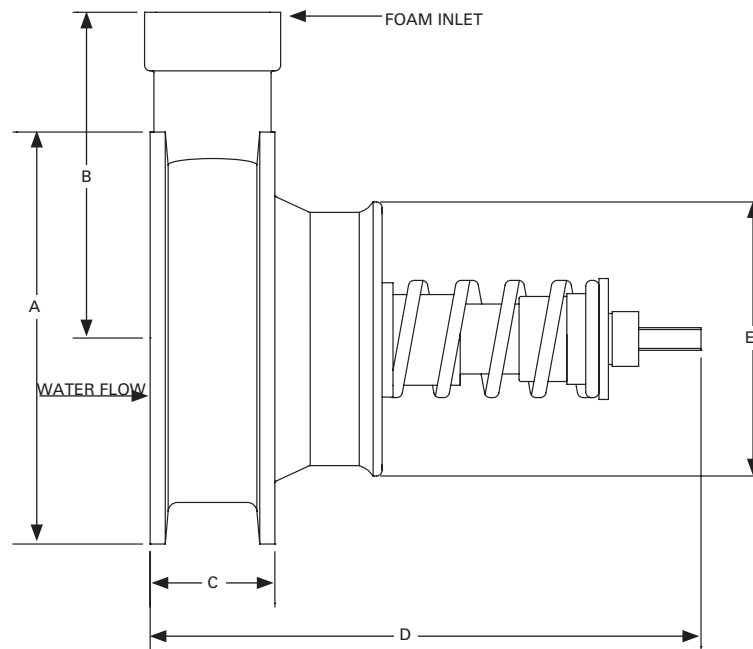
SKUM TPW 10 in. MK3 with 3 in. ANSI flange foam inlet

124525217A	3% AFFF	FM
124525217C	3x3 AR-AFFF	FM
124525217E	2% HOTFOAM	–
124525217B	1% AFFF	–
124525217F	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
TPW 6 in.	(6 in.) DN150	5	(72.5)	16	(232.1)	750	(29.5)	750	(29.5)	13	(28.7)
TPW 8 in.	(8 in.) DN200	5	(72.5)	16	(232.1)	1000	(39.4)	1000	(39.4)	25	(55.1)
TPW 10 in.	(10 in.) DN250	5	(72.5)	16	(232.1)	1250	(49.2)	1250	(49.2)	40	(88.2)

Model	Foam Inlet	A		B		C		D		E	
		mm	(in.)	mm	(in.)	mm	(in.)	mm	(in.)	mm	(in.)
TPW 6 in.	2 in. BSP (Female)	218	(8.6)	172	(6.8)	69	(2.7)	281	(11.1)	145	(5.7)
TPW 6 in.	2 in. groove	218	(8.6)	202	(8.0)	69	(2.7)	281	(11.1)	145	(5.7)
TPW 8 in.	2 1/2 in. BSP (Female) and 2 in. groove	271	(10.7)	246	(9.7)	90.8	(3.6)	326	(12.8)	203	(8.0)
TPW 10 in.	3 in. DIN flange or 3 in. ANSI flange	328	(12.9)	264	(10.4)	100	(3.9)	351	(13.8)	250	(9.8)



System Specifications

Bladder Tank
(using DN50 pipe except where noted)

Model	Foam Agent	Minimum Flow		Maximum Flow		Equivalent m	Equivalent (ft)
		Lpm	(gpm)	Lpm	(gpm)		
TPW 6 in.	SKUM AFFF 3% UG	87*	(23)	11,708*	(3,093)	3.7 – 10.7	(12 – 35)
	SKUM ARC 3x3 UG	117*	(31)	11,818*	(3,122)	3.7 – 10.7	(12 – 35)
	SKUM 2% HOTFOAM	178	(47)	11,167	(2,950)	3.7 – 10.7	(12 – 35)
	SKUM AFFF 1% UG	208	(55)	10,978	(2,900)	3.7 – 10.7	(12 – 35)
	SKUM FP3% EG	193	(51)	11,118	(2,937)	3.7 – 10.7	(12 – 35)
	ANSULITE A336 USCG	197†	(52)	11,315†	(2,989)	3.7 – 10.7	(12 – 35)
	NFF 3x3 UL201	349***	(92)	11,489***	(3,035)	3.7 – 10.7	(12 – 35)
TPW 8 in.	SKUM AFFF 3% UG	121*	(32)	18,563*	(4,904)	3.7 – 10.7	(12 – 35)
	SKUM ARC 3x3 UG	223*	(59)	18,855*	(4,981)	3.7 – 10.7	(12 – 35)
	SKUM 2% HOTFOAM	197	(52)	19,135	(5,055)	3.7 – 10.7	(12 – 35)
	SKUM AFFF 1% UG	189	(50)	19,457	(5,140)	3.7 – 10.7	(12 – 35)
	SKUM FP3% EG	208	(55)	19,218	(5,077)	3.7 – 10.7	(12 – 35)
	ANSULITE A336 USCG	303†	(80)	17,508†	(4,625)	3.7 – 10.7	(12 – 35)
	TPW 10 in.	SKUM AFFF 3% UG	189*	(50)	20,119*	(5,315)	3.7 – 10.7
SKUM ARC 3x3 UG		295*	(78)	20,376*	(5,383)	5.2 – 10.7**	(17 – 35)
SKUM 2% HOTFOAM		193	(51)	20,252	(5,350)	3.7 – 10.7	(12 – 35)
SKUM AFFF 1% UG		568	(150)	19,949	(5,270)	3.7 – 10.7	(12 – 35)
SKUM FP3% EG		204	(54)	19,684	(5,200)	3.7 – 10.7	(12 – 35)

* FM Approved flow range

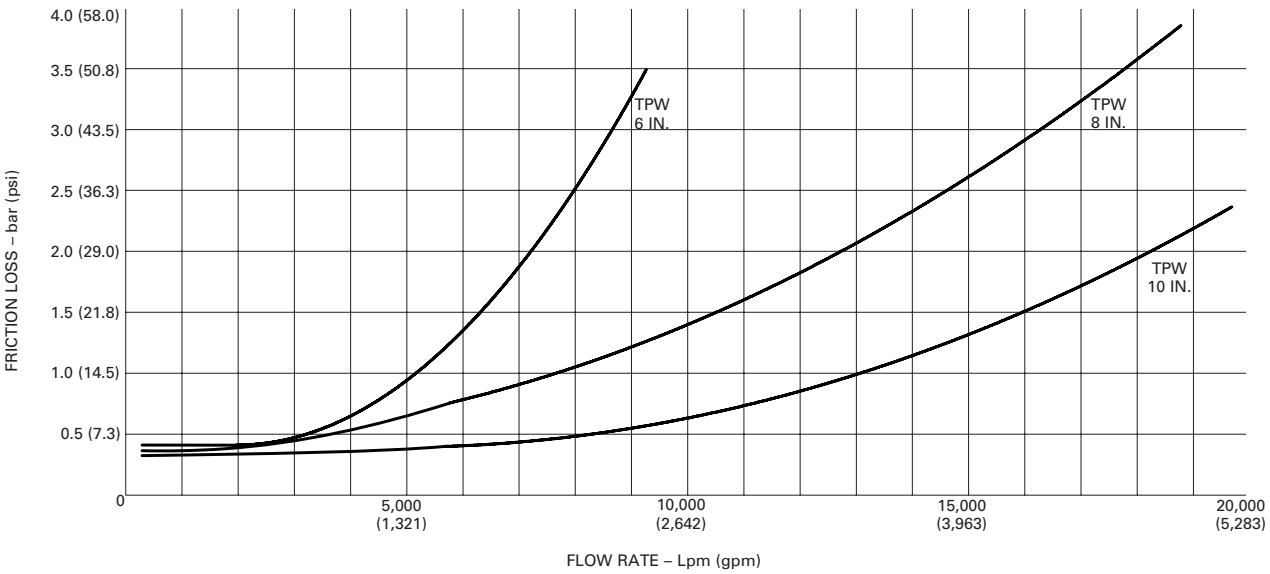
** Using DN65 pipe

*** UL Listed flow range

† UL and USCG Approved flow range

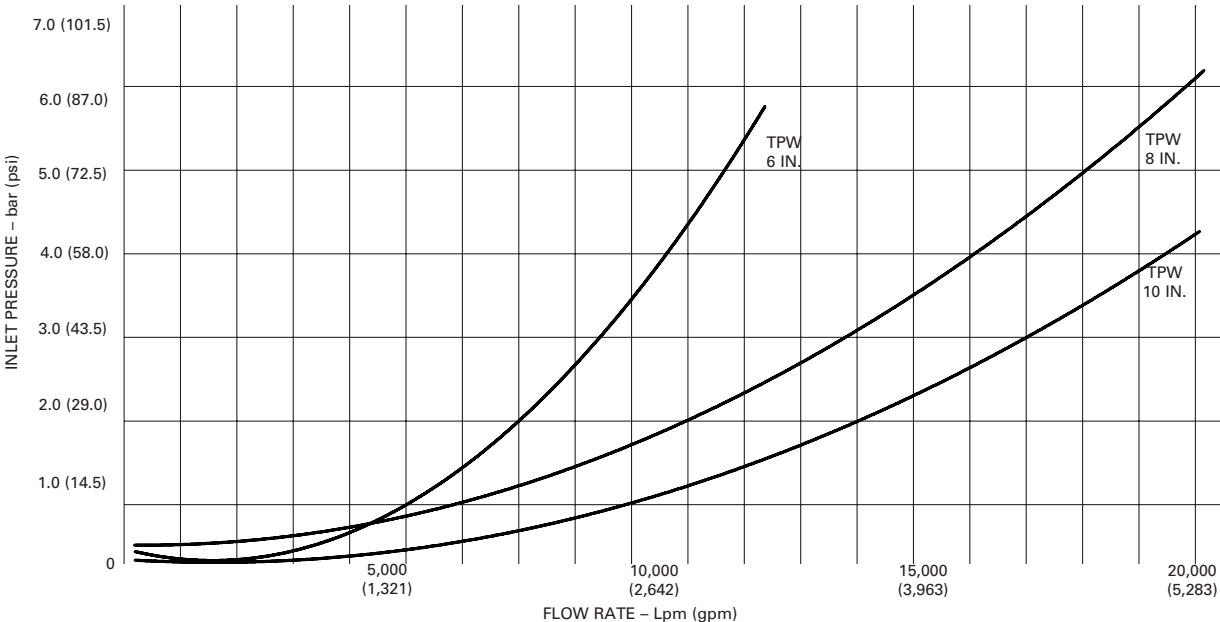
Note: The SKUM TPW MK3 Wide Range Proportioners have been tested for use with the agents listed in this section. Results with other agents may vary.

SKUM TPW MK3 Friction Loss



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SKUM TPW MK3 Minimum Inlet Pressure



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