

WIDE RANGE FOAM PUMP PROPORTIONERS

MODEL LFP-6 and LFP-8

NPR108

Approvals: UL with Universal^{®F3} Green AR-Synthetic Foam

- Designed to Meet the Proportioning Requirements of NFPA 16:2015 Chapter 4 and EN 13565-1:2003+A1:2007 Chapter 7
- UL Approved for Use with National Foam Universal^{®F3} Green AR-Synthetic Foam Concentrate
- Foam Proportioning as Low as 28 GPM (106 LPM)
- Offers economical advantages for complex designs that normally require multiple remote in-line proportioners
- Less Total System Hardware and Maintenance Required with Minimal Moving Parts and No Electrical Hook-Up Required



Description

National Foam Wide Range Foam Pump Proportioners are designed for use with National Foam's Universal Green 3%-3% AR-Synthetic Foam Concentrate. The proportioners function by metering foam concentrate into the water supply line.

The Foam Pump Proportioner functions 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 within the supply manifold. A pressure control valve, located in the return line to the foam concentrate storage tank, is set to maintain a regulate pressure in the supply manifold at a minimum of 15 PSI to 29 PSI (1 Bar to 2 Bar) higher than the maximum pressure in the water supply line. Excess foam concentrate, not required by the system, returns to the atmospheric storage tank through the pressure control valve.

When installed in a closed head, wet sprinkler system, the proportioner operates as follows:

- With the proportioner properly installed in the sprinkler riser, the water pressure is equal on both sides

of the proportioner. As sprinkler heads open in a fire situation, foam concentrate is added into the water stream through a precisely machined metering tube.

- As more sprinkler heads open, the increase in water flow causes the deflector to open more, increasing the orifice size on the metering tube, allowing more foam concentrate into the water stream. This feature gives the proportioner the ability to properly proportion at both extremely low flow rates and at high flow rates.

Each proportioner consists of a cast bronze body, bronze pressure balancing valve, pressure sensing tubing, bronze deflector, stainless steel spring, and stainless steel foam metering tube.

The LFP Model Proportioner is available in two standard sizes (6 in. and 8 in.) and is designed to fit between two 6 in. (DN150) or 8 in. (DN200) ANSI Class 150 (DIN PN16) 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 NFPA 16:2015 Chapter 4 and EN 13565-1:2003+A1:2007 Chapter 7
- UL Approved for Use with National Foam Universal^{®F3} Green Foam Concentrate

- Foam Proportioning as Low as 65 GPM (246 LPM) - 4 Heads
- Offers economical advantages for complex designs that normally require multiple remote in-line proportioners
- Less Total System Hardware and Maintenance Required with Minimal Moving Parts
- No Electrical Hook-Up Required

Applications

The National Foam Model LFP Wide Range Proportioner is UL Approved for use with National Foam Universal^{®F3} Green 3%-3% AR-Synthetic Foam Concentrate. Refer to the Systems Specifications for other NF foam concentrates that have been tested for use with this proportioner.

The NF Model LFP proportioner with control valve is designed for use with foam pump systems only. The Wide Range proportioner is part of an in-line balanced proportioning system using an atmospheric foam concentrate tank connected to a positive displacement foam concentrate pump. The foam-water solution is then piped to the discharge devices in the hazard area.

The Wide Range proportioner is designed to proportion and control the mixing of the foam concentrate into a waterstream over a wide range of water flow rates and pressures. The proportioners have been tested and are capable of proportioning at flow

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rates as low as 65 GPM(246 LPM) to as high as 3188 GPM(12,068 LPM) with a maximum working pressure of 250 PSI (17 Bar).

NFPA 30:2015 Chapter 16 requires properly proportioned foam solution to be generated with as few as four sprinklers flowing. In many foam-water sprinkler systems, this condition would produce 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 Wide Range Proportioner allows foam to be proportioned properly across a wide design range for a system.

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

- 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 handline(s).
- Closed head foam-water sprinkler systems including warehouse storage, chemical processing, loading racks, and anywhere flammable liquids are used, stored, processed, or transported.

Approvals and Listings

- UL Approval with Universal^{®F3} Green AR-Synthetic Foam

Technical Information

Materials of Construction:

Body:Cast Bronze
 Deflector:.....Bronze
 Spring:Stainless Steel
 Foam Metering Tube:Stainless Steel

* Typical Flow Ranges					
		Minimum Flow		Maximum Flow	
Model	Foam Concentrate	GPM	LPM	GPM	LPM
LFP-6	Universal Green	65	246	2,800	10,599
LFP-8	Universal Green	76	288	3,188	12,068

*Refer to UL directory for specific flow range for each foam concentrate.

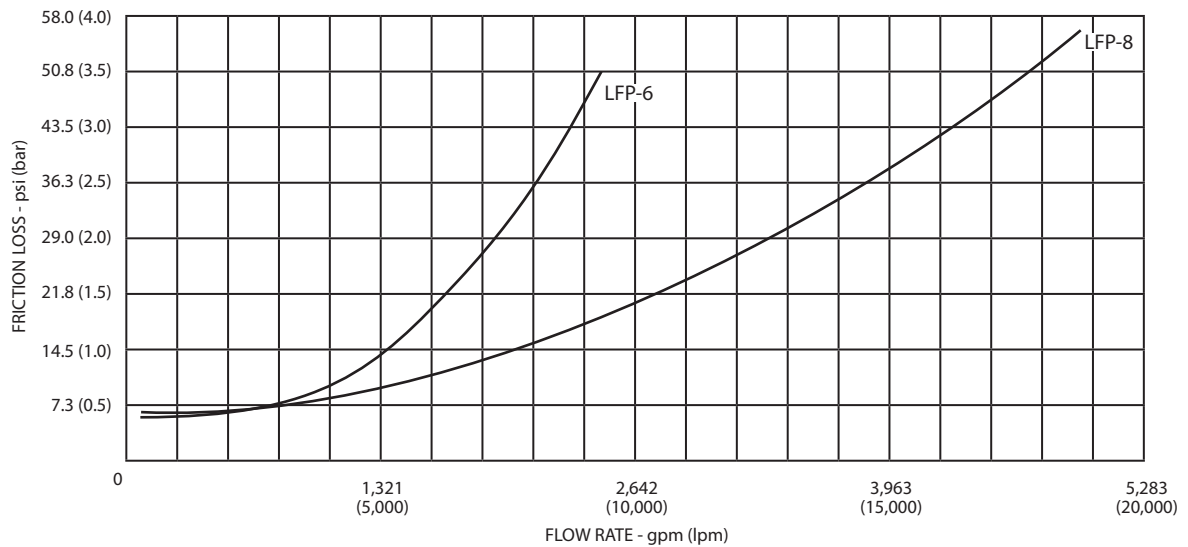
Proportioner Information											
		Minimum Inlet Pressure		Maximum Inlet Pressure		Upstream Straight Pipe Length		Downstream Straight Pipe Length		Approx. Weight	
Model	Size	psi	bar	psi	bar	in.	mm	in.	mm	lb.	kg
LFP-6	6 in. (DN150)	72.5	5	232.1	16	29.5	750	29.7	750	33.1	15
LFP-8	8 in. (DN200)	72.5	5	232.1	16	39.4	1,000	39.4	1,000	77.2	35

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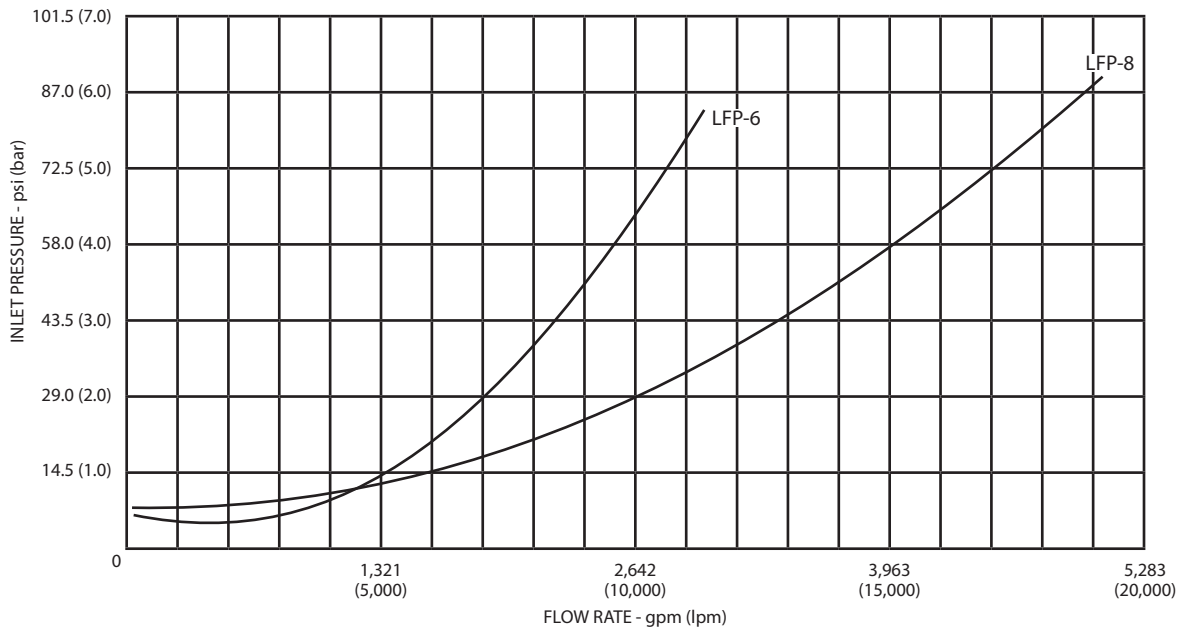
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LFP Models Friction Loss



LFP Models Minimum Inlet Pressure

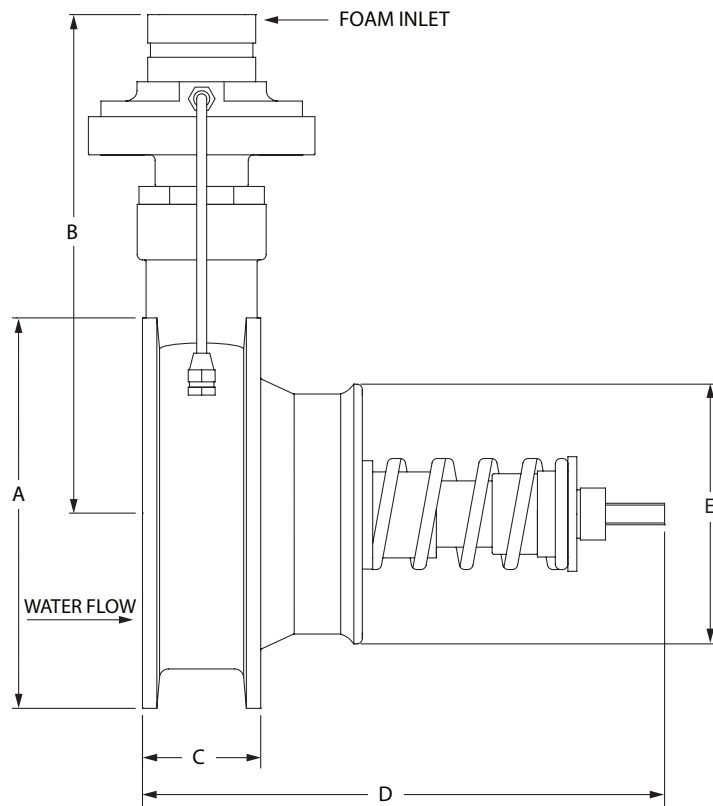


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Proportioner Dimensions											
		A		B		C		D		E	
Model	Foam Inlet	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
LFP-6	1.5 in. BSP(F) & 2 in. Groove	8.6	218	10.9	278	2.7	69	11.2	281	5.7	145
LFP-8	2 in. Groove	10.7	271	14.0	356	3.6	90.8	12.8	326	8.0	203
LFP-8	2 in. DIN Flg.	10.7	271	13.8	350	3.6	90.8	12.8	326	8.0	203



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ORDERING INFORMATION						
Size	Model	% Injection	Foam Concentrate Inlet	Part Number	Weight lb (kg)	Approx. Shipping Cube ft ³ (m ³)
<i>Universal Green 3%-3% Foam Concentrate</i>						
6"	LFP-6-3-FP-BSP	3%	BSP Female	1233-8102-1	27.5 (12.5)	2.17 (0.06)
6"	LFP-6-3-FP-GR	3%	Grooved	1233-8102-2	27.5 (12.5)	2.17 (0.06)
6"	LFP-6-6-FP-BSP	6%	BSP Female	1233-8102-3	27.5 (12.5)	2.17 (0.06)
6"	LFP-6-6-FP-GR	6%	Grooved	1233-8102-4	27.5 (12.5)	2.17 (0.06)
8"	LFP-8-3-FP-BSP	3%	BSP Female	1233-8102-5	51 (23)	3.75 (0.1)
8"	LFP-8-3-FP-GR	3%	Grooved	1233-8102-6	51 (23)	3.75 (0.1)

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National Foam

350 East Union Street, West Chester, PA 19382, USA
24hr **RED ALERT**® : 610-363-1400 • Fax: 610-431-7084

www.nationalfoam.com

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