

WAFER TYPE RATIO CONTROLLER

MODEL: WRC-B, WRC-S



DESCRIPTION

NAFFCO Pressure Proportioner is for use in fixed systems to introduce designed foam concentrate at a predetermined rate into the fire-water supply, over a varying range of foam solution demands. For example, where a number of discharge outlets may be required to operate individually or simultaneously. There are 5 basic models with capacities from 40 GPM to 2400 GPM and each unit is factory-calibrated to suit proportioning rates of 2% or 3% or 6% of a specified foam concentrate.

Size 2.5" proportioner shall be threaded type and the other sizes are wafer type. The wafer type, designed to be installed between ANSI 150 flanges and are manufactured from high grade corrosion resistant materials. They are simple to install, require no maintenance and their modular construction gives the engineer considerable flexibility in terms of selection of flow rate and positioning within the system.



FEATURES

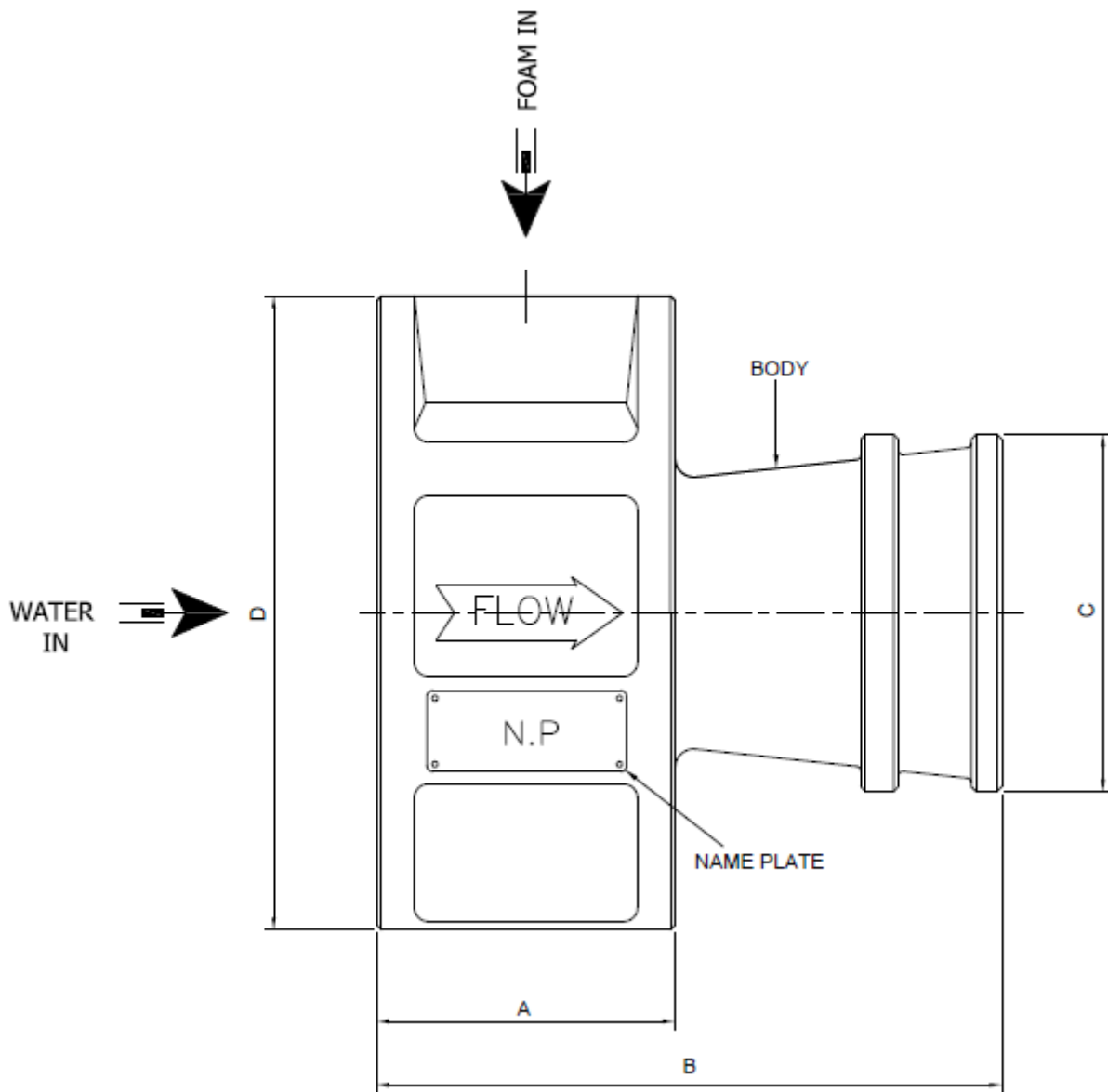
- Corrosion resistant bronze(WRC-B)/ stainless steel construction (WRC-S).
- Custom flow and pressure options available.
- Optional threaded or flanged end connections
- 2.5" WRC shall be threaded, other size are wafer type.

WAFER TYPE RATIO CONTROLLER SIZE & FLOW RATE

RATIO CONTROLLER, MODEL: WRC-B AND WRC-S, FLOW RATE IN GPM

Foam Concentrate	Approval	65NB	65NB*	80NB	80NB*	100NB	100NB*	150NB	200NB
AFFF 3%	UL	53-415	20-150	231-614	125-840	460-1585	140-712	775-2399	845-2364
AFFF 6%	UL	61-410	--	119-817	243-618	445-1559	193-491	752-2289	859-2315
AR-AFFF 3/3	UL	99-300	--	221-623	--	465-1020	--	793-2214	1089-2400
AFFF 3%	FM	55-313	--	237-614	--	455-1200	--	780-2400	845-2320
AFFF 6%	FM	66-220	--	241-619	--	445-1150	--	725-2135	890-2305
AR-AFFF 3/3	FM	98-348	--	229-616	--	465-1032	--	758-2375	853-2311
AR-AFFF 3/6-3%	FM	93-324	--	232-632	--	455-1026	--	765-2270	837-2360
AR-AFFF 3/6-6%	FM	101-322	--	251-646	--	460-1035	--	775-2260	1103-2100
AFFF 1% (NFP1)	UL	69-357	--	116-315	--	--	--	--	--
AR-AFFF 1/3-1%	UL	56-376	--	131-374	--	--	--	--	--
AR-AFFF 1/3-3%	UL	71-378	--	146-373	--	--	--	--	--
FP P3-3%	UL	71-357	--	96-371	--	--	--	--	--
NF HEFC 2%	UL	40-351	--	125-735	--	172-1128	--	--	--
AR-AFFF 3/3 (NFP)	UL	--	38-153	228-806	--	--	--	--	--
AR-AFFF 3/6-3% (NFP)	UL	--	--	200-704	--	--	--	--	--
AR-AFFF 3/6-6% (NFP)	UL	--	--	233-736	--	--	--	--	--

*These models are available with different orifices.



DIMENSIONAL DATA

Proportioner Models	Size (mm)	A	B	C	D	Weight
WRC-B & WRC-S	65	60 mm	approx. 130 mm	64 mm	120 mm	Approx. 3.9 kg
	80	63.5mm	approx. 135 mm	76 mm	135 mm	Approx. 4.2 kg
	100	64.5 mm	approx. 230 mm	101 mm	173 mm	Approx. 7.4 kg
	150	84 mm	approx. 305 mm	154 mm	219 mm	Approx. 14.65 kg
	200	108 mm	approx. 345 mm	198 mm	270 mm	Approx. 33.3 kg

In-line BALANCE PRESSURE FOAM PROPORTIONER

MODEL: NF-IBP SERIES



APPLICATION

The In-line Balance Pressure Foam Proportioner are used with positive displacement foam concentrate supply pump. The system controls accurately the flow of foam concentrate into the water stream over a wide range of flow rate and pressure.

The In-line Balance Pressure Foam Proportioning System is used for simultaneous operation of the multiple foam injection even with different pressures between the two injection point with a single concentrate supply line. Various sizes of in-line balance pressure proportioner can be combined to suit the flow requirement of each hazard area.

SPECIFICATION

In-line balance pressure proportioning system utilizes a single, positive displacement foam concentrate supply pump, an atmospheric foam concentrate storage tank, in-line balance proportioner, and a foam concentrate regulating valve. The pressure regulating valve is mounted on foam concentrate return line to the foam concentrate storage tank. The valve regulates the foam concentrate supply pressure. The In-line balance pressure proportioner consists of a ratio controller, diaphragm operated pressure balancing valve, water and foam gauges, and pressure sensing hose of Teflon tube with stainless steel braided cover, interconnecting trim fittings with various control and flush valves. The water inlet pressure and foam concentrate pressure at metering orifice is sensed by a diaphragm valve and it automatically balances the concentrate supply to provide accurately proportioned water foam solution over a wide range of flow conditions.

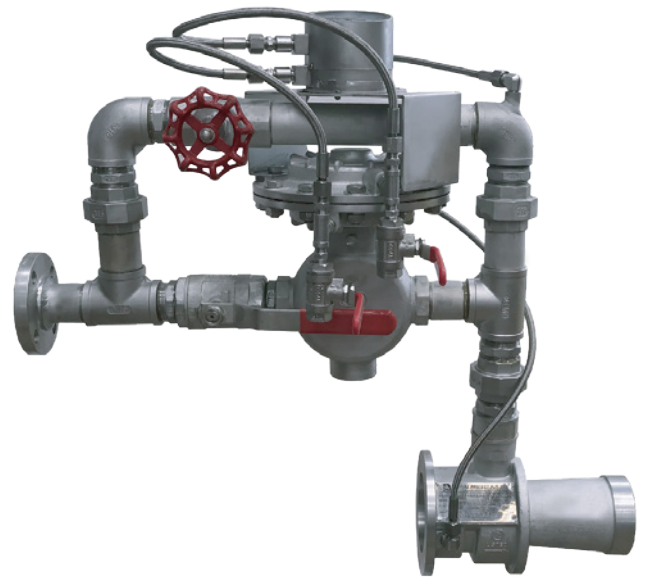
A foam concentrate supply valve is also provided as an optional item. The system requires foam concentrate supply pressure of minimum 25 psi and maximum of 40 psi. higher than the water supply pressure. The In-line balance pressure proportioner is also provided with a manual balancing valve

*NOTES:

- Each In-line Balance Pressure Proportioner shall have a minimum of five pipe diameter of straight unobstructed pipe at upstream and downstream of the proportioner.
- The In-line Balance Pressure Proportioner horizontal mounting is standard supply and vertical mounting is optional supply.
- It is recommended to have foam concentrate supply pressure gauge adjacent to inlet of foam concentrate (E). It is to be installed by installer.
- The foam concentrate line connecting to inlet of (E) can be of higher size to reduce friction loss in piping supplying foam concentrate.
- In-line Balance Proportioner is UL Listed with NAFFCO Foam Concentrate AFFF 3-C6,3% and AR-AFFF 3 x 3-C6,3%.
- In-line Balance Proportioner is supplied with Duplex gauge as standard supply and two Pressure Gauges as optional supply.

INSPECTION AND MAINTENANCE

A qualified and trained person must commission the system. After a few initial successful tests, an authorized person must be trained to perform the inspection and testing of the system. It is recommended to carry out physical inspection of the system at least once in a week. The inspection should verify that all the valves are in their



proper position as per the system requirement and no damage has taken place to any component.

The system where foam concentrate piping is maintained in charged condition, the provision should be made to flow foam through each In-line Balance Proportioner at least once in six weeks. The system should be fully tested at least once in a year or in accordance with applicable NFPA codes, or in accordance to the guidelines of the organization having local jurisdiction.

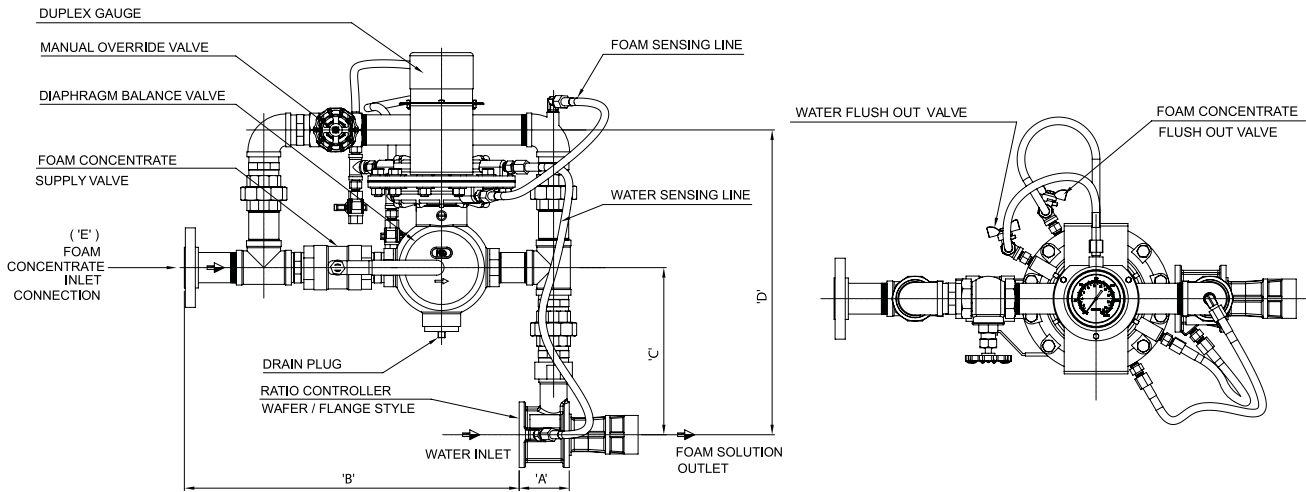
TECHNICAL INFORMATION

Material	NFIBP-SS-Stainless Steel * NFIBP-B-Bronze NFIBP-MS-Stainless Steel*# NFIBP-MB-Bronze #
Size	65, 80, 100, 150 & 200 NB
Maximum Service Pressure	14 bar (200 psi) 12 bar (175 psi)-UL Listed
Minimum Working Pressure	2.8 bar (40 psi)
Ratio Controller Mounting Type	Wafer type or Flanged end ANSI B 16.5
Thread Opening	BSPT/NPT optional
Pressure Sensing Hose	TEFLON tube with Stainless Steel braided cover
Trim Connection and Various Control Valves	Stainless Steel
Factory Hydrostatic Test Pressure	25 kg/cm ² (350 psi)
Finish	Red RAL 3001
Ordering Information	Specify • Model Number • Flow rate • Percentage Induction • Type of Foam Concentrate used

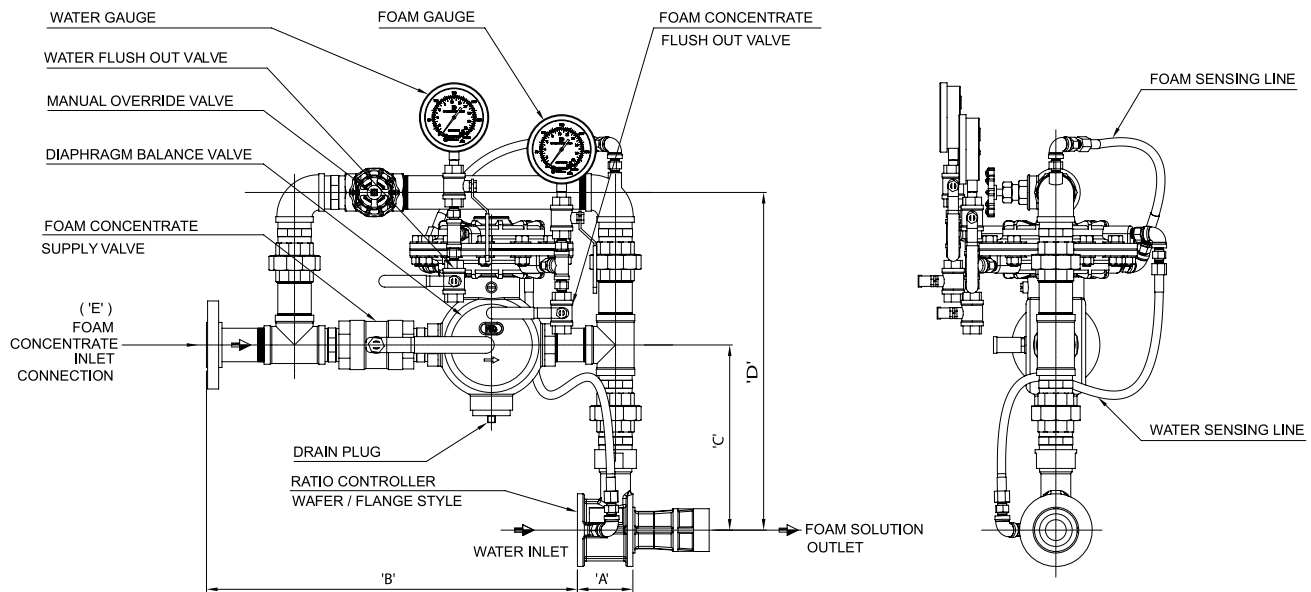
*NOTES:

- * Stainless Steel CF8 (304) is standard supply; CF8M (316), CF3 (304L) & CF3M (316L) are optional supply.
- # Only for 65 NB Size.

IN-LINE BALANCE PRESSURE PROPORTIONER WITH MANUAL OVERRIDE DUPLEX GAUGE ARRANGEMENT (Optional Supply)



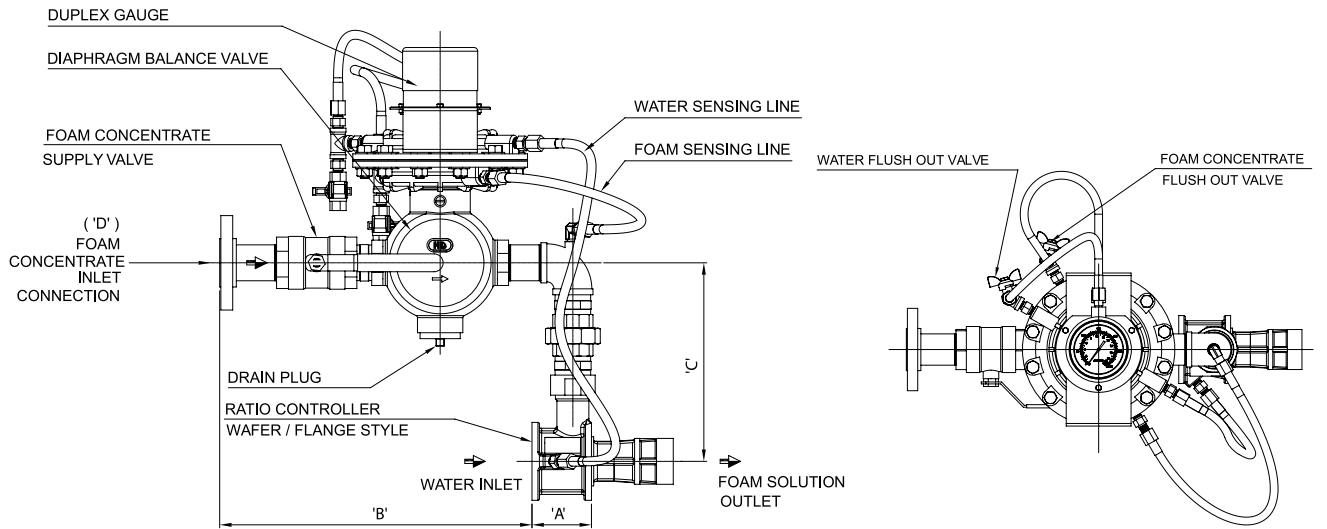
TWIN GAUGE ARRANGEMENT (Standard Supply)



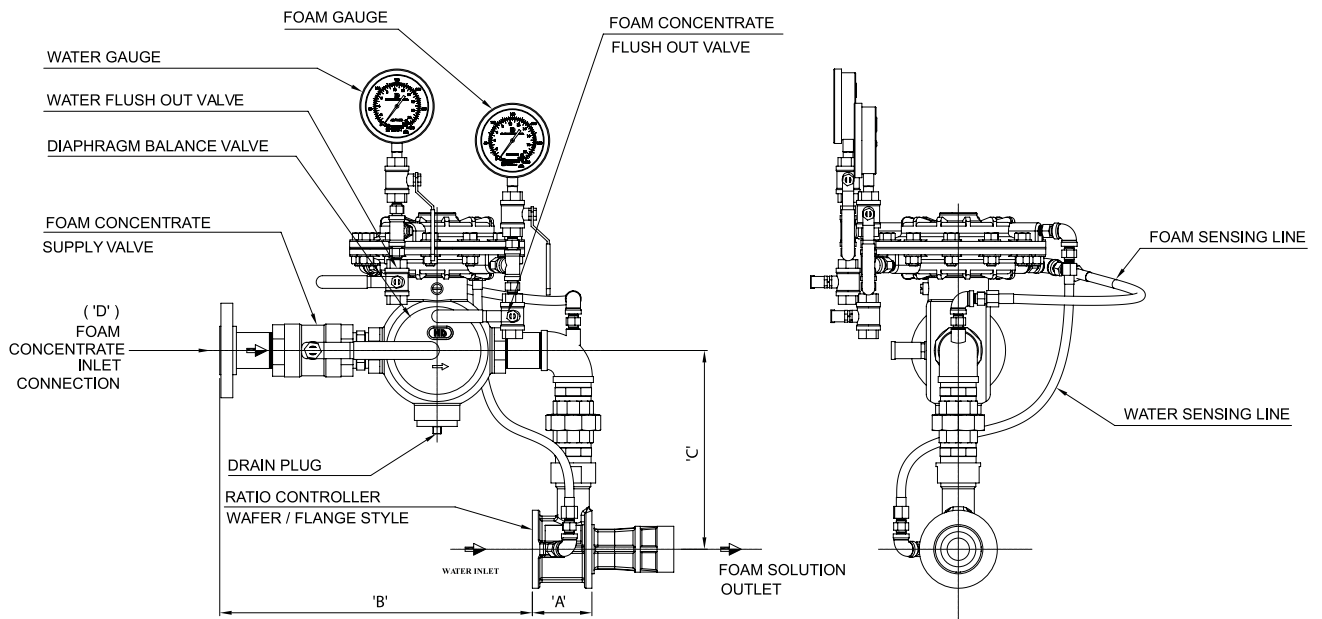
Model	Approximate Dimensions (in mm)				
	A	B	C	D	E
65 NB	80	535	267	487	40 NB
80 NB	107.5	508	272	492	40 NB
100 NB	126	500	293	513	40 NB
150 NB	133	525	338	583	50 NB
200 NB	130	538	365	610	50 NB

DIMENSIONS in mm (Approximate)

IN-LINE BALANCE PRESSURE PROPORTIONER WITHOUT MANUAL OVERRIDE
DUPLEX GAUGE ARRANGEMENT (Optional Supply)



TWIN GAUGE ARRANGEMENT (Standard Supply)



Model	Approximate Dimensions (in mm)			
	A	B	C	D
65 NB	80	420	267	40 NB
80 NB	107.5	390	272	40 NB
100 NB	126	382	293	40 NB
150 NB	133	393	338	50 NB
200 NB	130	408	365	50 NB

DIMENSIONS in mm (Approximate)

FLOW RANGE (LPM)

RATIO CONTROLLER (WAFER STYLE-WRC SERIES)

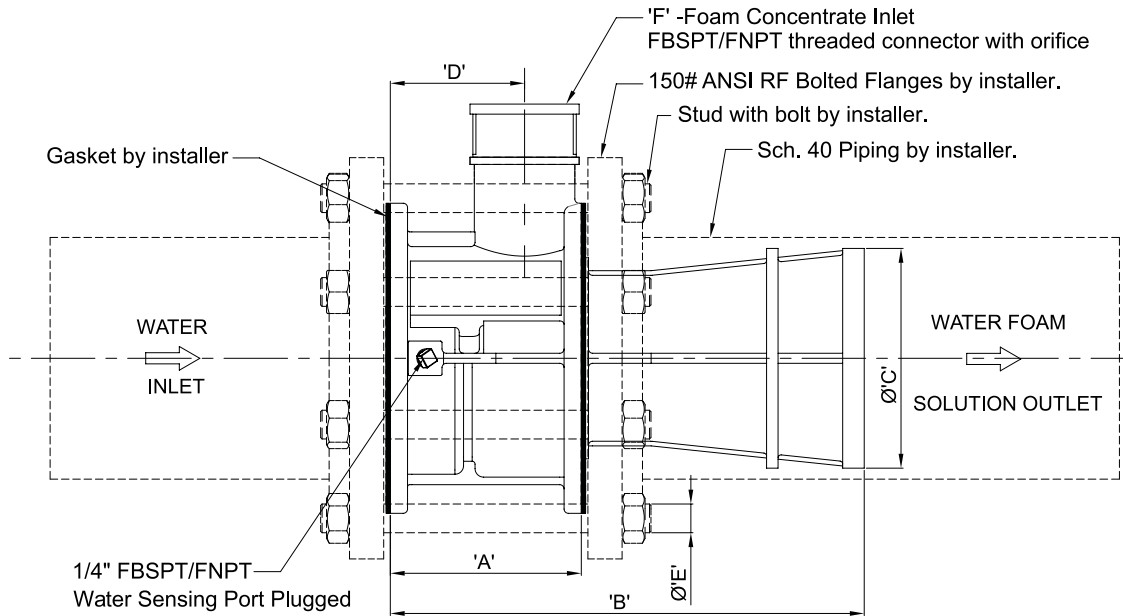


TABLE-V

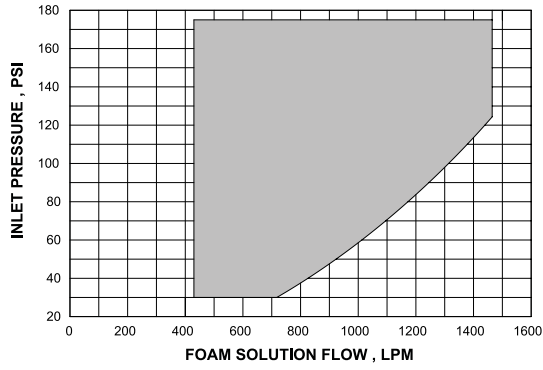
Sl. No.	In-line Balance Proportioner Model	Size	Flow in LPM	
			AFFF 3%	AR-AFFF 3 x 3%
1	NFIBP-SS and NFIBP-B	65	401 to 1419	496 to 1476
2	NFIBP-MS, NFIBP-MB	65	--	182 to 659
3	NFIBP-SS and NFIBP-B	80	363 to 3077	727 to 3017
4	NFIBP-SS and NFIBP-B	100	655 to 6037	780 to 5999
5	NFIBP-SS and NFIBP-B	150	1930 to 12267	2173 to 11658
6	NFIBP-SS and NFIBP-B	200	2960 to 16245	3543 to 16847

DIMENSION

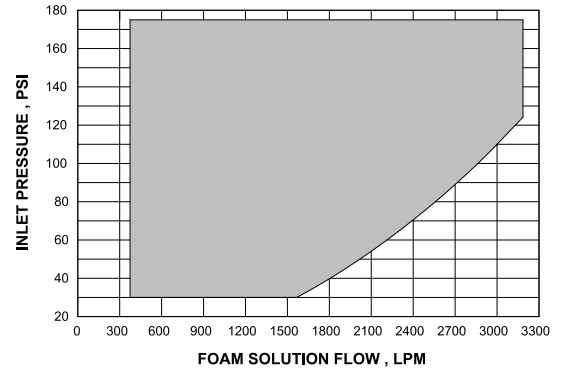
Size	Approximate Dimensions (in mm)					
	'A'	'B'	Ø 'C'	'D'	Ø 'E'	'F'
8"	130	340	Ø200	80	M20 x 240 Long	2" BSP (F)/NPT (F)
6"	133	330	Ø152	93.5	M20 x 230 Long	2" BSP (F)/NPT (F)
4"	120	266	Ø101	90	M16 x 220 Long	1½" BSP (F)/NPT (F)
3"	107.5	190	Ø76	82.5	M16 x 200 Long	1½" BSP (F)/NPT (F)
2 ½"	80	190	Ø61.7	55	M16 x 170 Long	1" BSP (F)/NPT (F)

INLET PRESSURE VS FOAM SOLUTION FLOW
(FOAM CONCENTRATE: AFFF-C6, 3%)

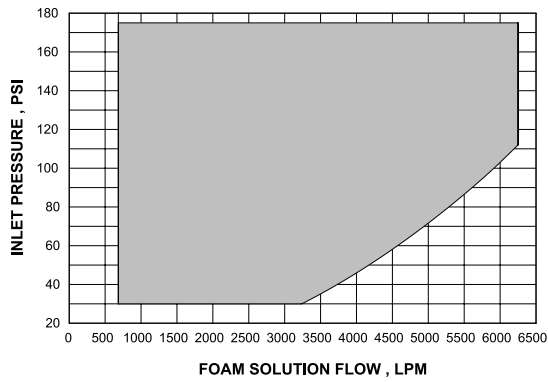
65 NB (MODEL: NFIBP-SS AND NFIBP-B)



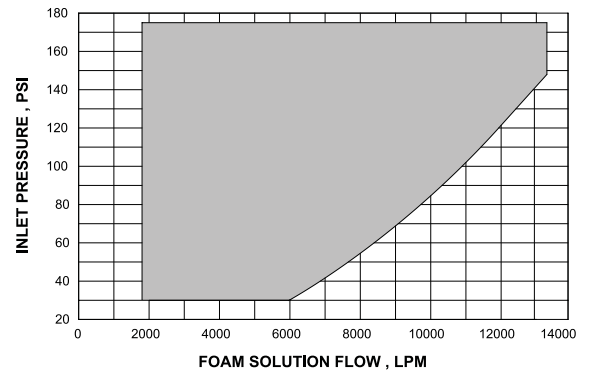
80NB (MODEL: NFIBP-SS AND NFIBP-B)



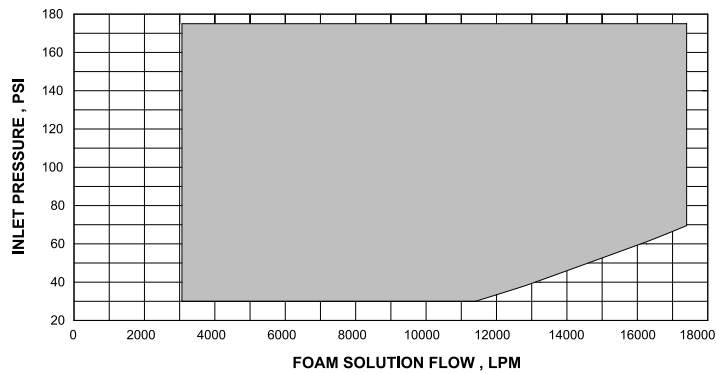
100 NB (MODEL: NFIBP-SS AND NFIBP-B)



150NB (MODEL: NFIBP-SS AND NFIBP-B)

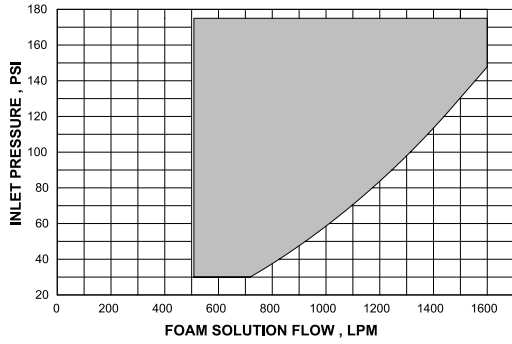


200 NB (MODEL: NFIBP-SS AND NFIBP-B)

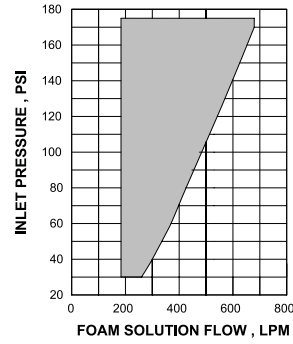


**INLET PRESSURE VS FOAM SOLUTION FLOW
(FOAM CONCENTRATE: AR-AFFF 3 X 3-C6, 3%)**

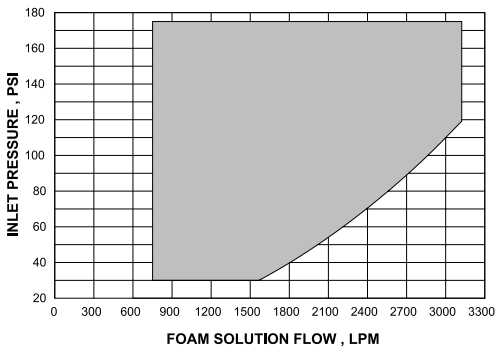
65 NB (MODEL: NFIBP-SS AND NFIBP-B)



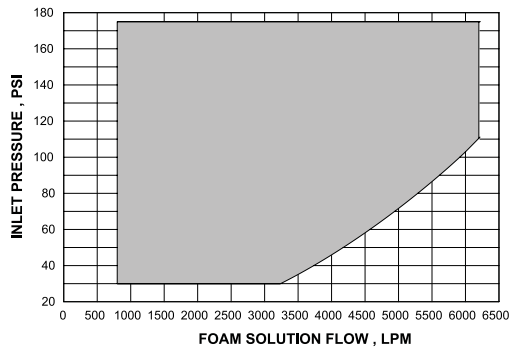
65 NB (MODEL: NFIBP-MS, NFIBP-MB)



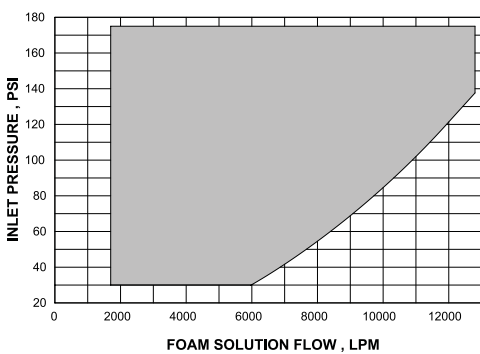
80 NB (MODEL: NFIBP-SS AND NFIBP-B)



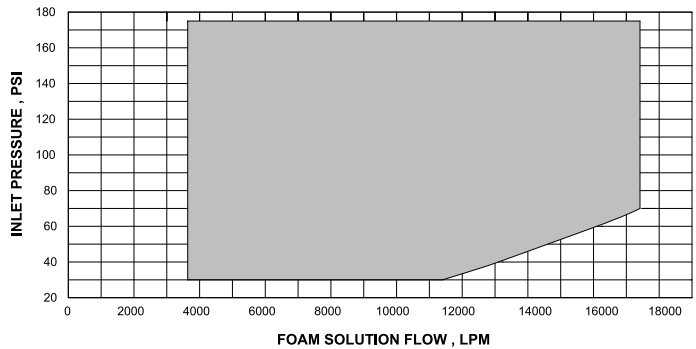
100 NB (MODEL: NFIBP-SS AND NFIBP-B)



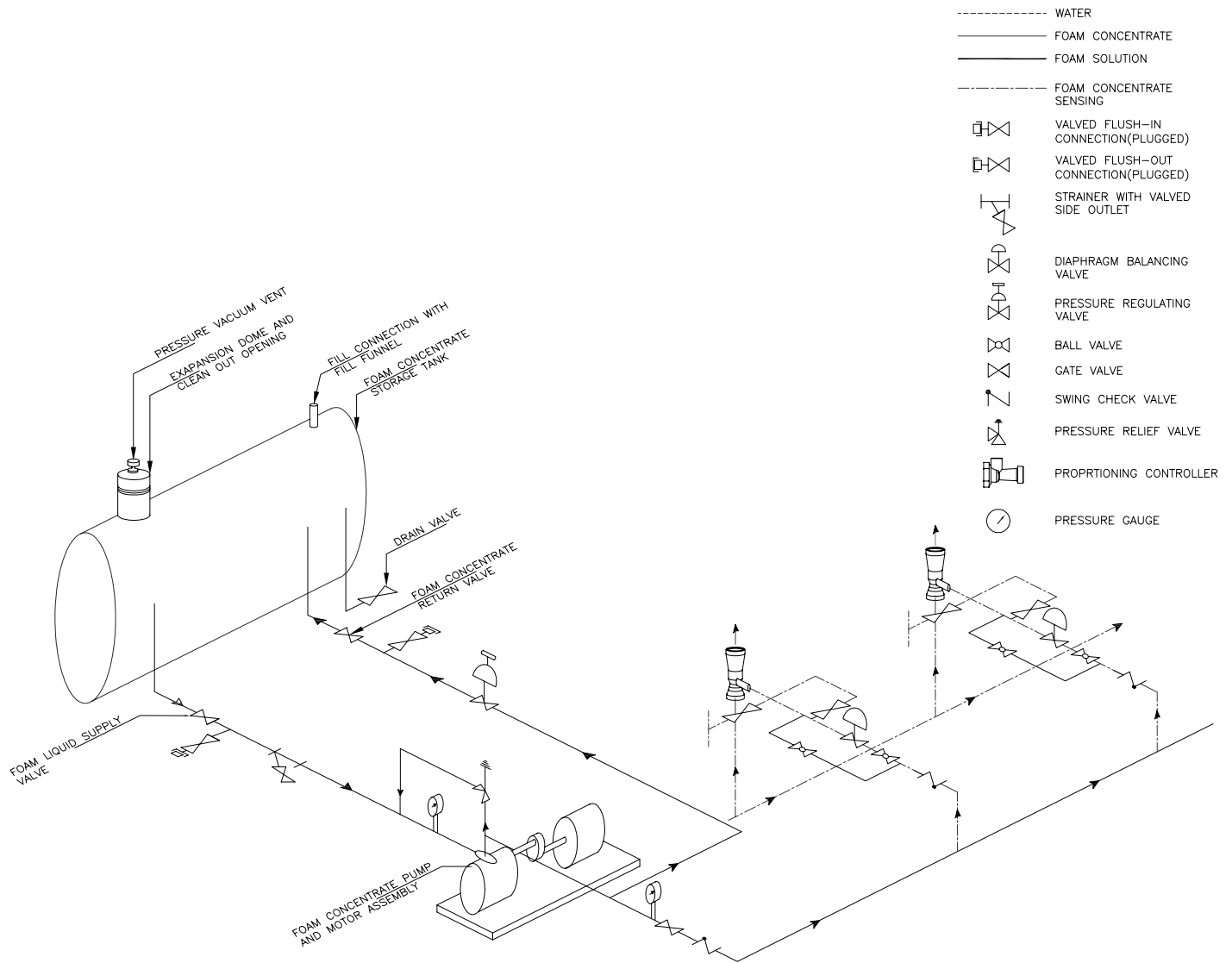
150 NB (MODEL: NFIBP-SS AND NFIBP-B)



200 NB (MODEL: NFIBP-SS AND NFIBP-B)



TYPICAL IN-LINE BALANCE PRESSURE FOAM PROPORTIONING SYSTEM



IN-LINE BALANCE PRESSURE FOAM PROPORTIONER ORDERING INFORMATION

X	X	X	X	X	X	X
Model: NFIBP-SS NFIBP-B NFIBP-MS* NFIBP-MB*	RC TYPE: W- Wafer F- Flanged	RC Size: 2 - 65 NB 3 - 80 NB 4 - 100 NB 6 - 150 NB 8 - 200 NB	Material: 1 - Bronze 2 - Ni. Al. Bronze 3 - SS CF8 (SS304) 4 - SS CF8M (SS316) 5 - SS CF3 (SS304L) 6 - SS CF3M(SS316L)	Pressure Gauge: D- Duplex Gauge T- Twin Gauge	M- Manual Override N - No Override	Foam Concentrate: 1 - AFFF 3-C6,3% 2 - AR-AFFF 3x3-C6,3%
* Only for 65 NB size						

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WIDE RANGE FOAM PROPORTIONER

MODEL: NF-WRP SERIES

DESCRIPTION

The NAFFCO Wide Range foam proportioner is designed to provide amount of foam concentrate to match minimum percentage to mix with water stream over a wide range of flows. These proportioner neither require any pressure restricting devices nor electrical connections & are purely mechanical based.

The NAFFCO Wide Range foam proportioner are not available as a standalone item, and must be ordered as part of bladder tanks, where both the water and concentrate pressures at the proportioner are equal.

These devices are suitable for use as proportioner for discharge devices such as sprinkler heads, foam chambers, foam makers, monitors and nozzles.

SPECIFICATION

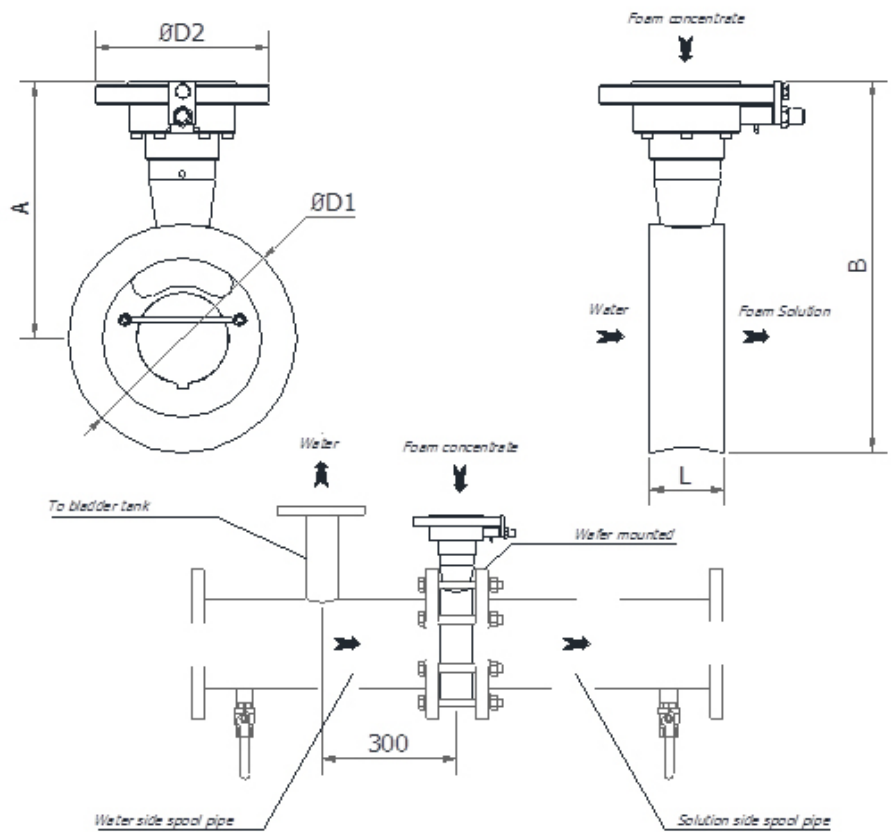
NAFFCO Wide Range foam proportioner are available either in bronze with internal parts made of stainless steel AISI 316. Assembled in wafer type connection for water inlet and solution outlet & ANSI Class 150 raised face flanged concentrate inlet. Mixing ratio is 1%, 3%, 6% (pre-selected)

The proportioner has an internal water float & intern attached to a hollow shaft with a slotted orifice metering tube. Increase in water flow causes the water float 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 extremely high flow rates.

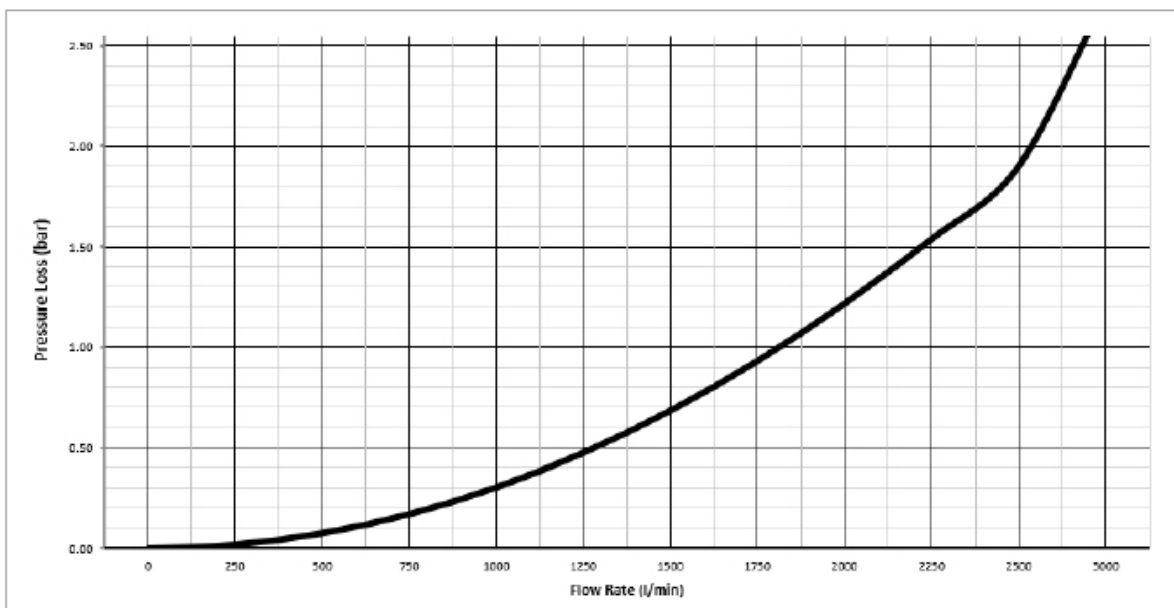


WAFER TYPE WIDE RANGE RATIO CONTROLLER FLOW RATE IN GPM

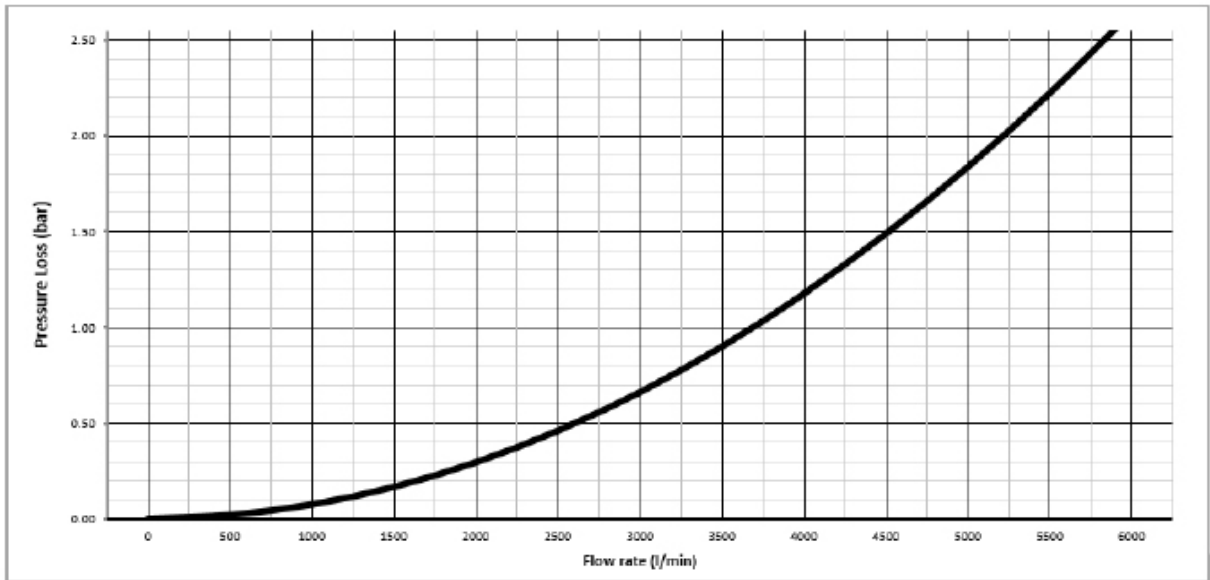
Foam Concentrate	Approval	NFWRP100-50	NFWRP150-50	NFWRP200-80	NFWRP250-80
1%, 3%, 6%	--	25-645	29-1450	34-2773	40-4225



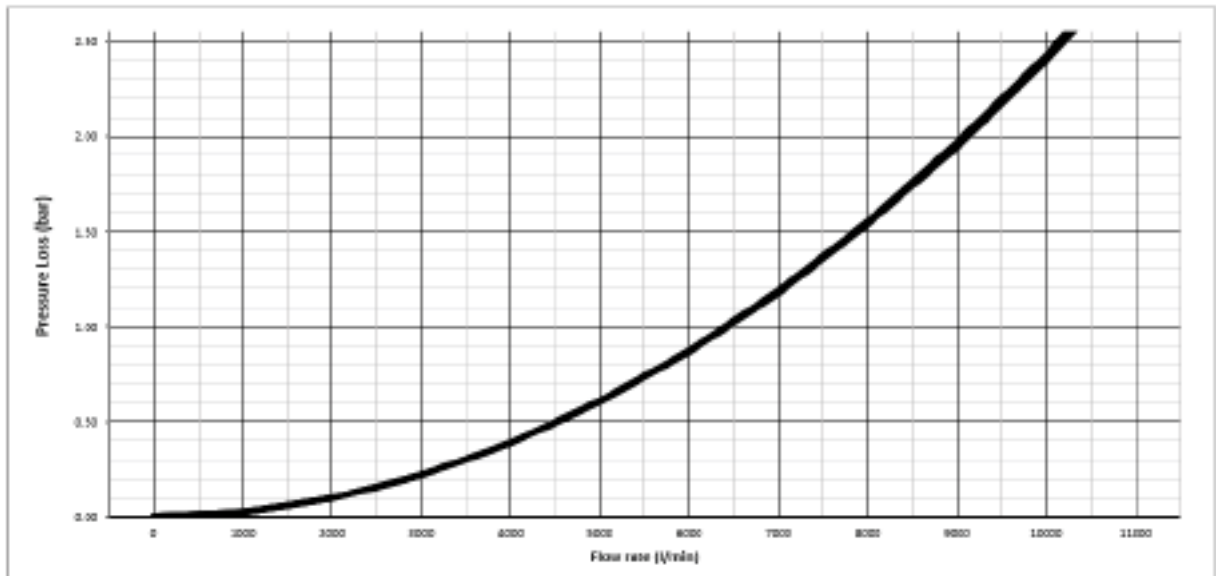
Model	ØD1	ØD2	A	B	L	Weight
WRP Series	4	2	216	294	70	15
	6	2	241	349	70	23
	8	3	241	426	82	39
	10	3	320	477	82	48



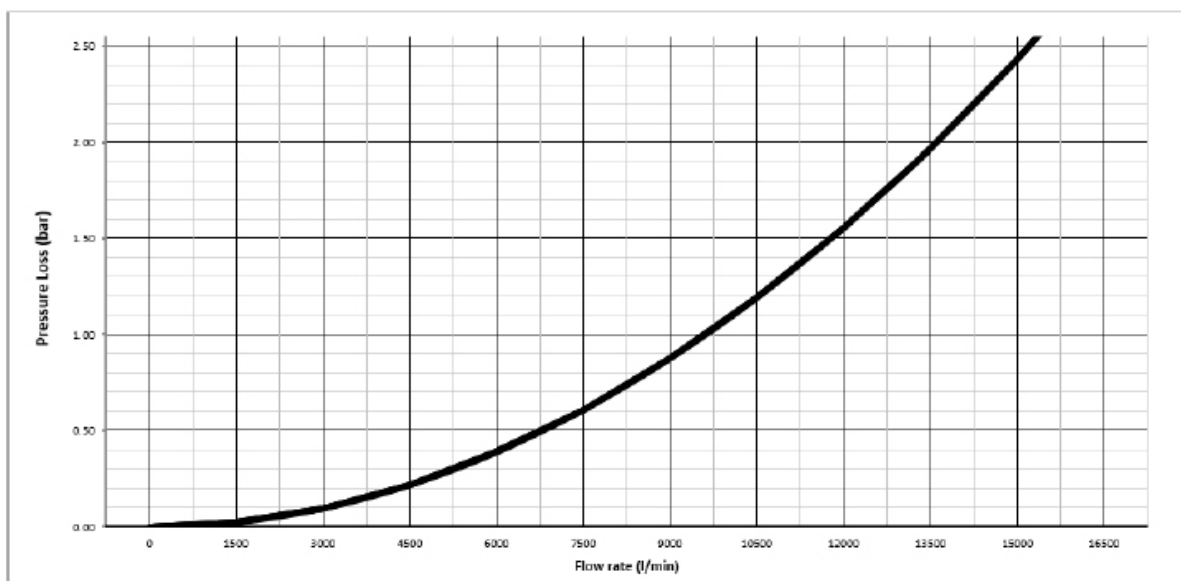
NF-WRP100-50



NF-WRP150-50



NF-WRP200-80



NF-WRP250-80