

## In-Line Balanced Pressure Proportioners Models IBP, IBP-M

### Features

- Six standard sizes to handle a wide range of flows with minimal friction loss
- Spool valve design ensures accurate pressure regulation and rapid response to changes in flow demand
- Brass foam concentrate piping with stainless steel trim accessories standard for use in marine applications and other corrosive environments
- Compatible with all ANSUL® foam concentrates
- Choice of unpainted brass or standard red paint finish

### Application

ANSUL® In-Line Balanced Pressure Proportioners are used with an atmospheric foam concentrate tank and a positive displacement foam concentrate pump. In-line balanced pressure proportioners are designed to accurately control the flow of a foam liquid concentrate into a water stream over a wide range of flow rates and pressures. Advantages of the in-line balanced pressure proportioner include the following:

- Multiple proportioning devices combined with a single pressurized foam concentrate supply.
- Foam concentrate can be proportioned near the discharge devices while the foam concentrate storage tank and pump are placed in a remote location.
- Water supply pressure can vary at proportioners under simultaneous operation without affecting foam solution concentration.
- Various sizes of in-line balanced pressure proportioners can be combined in a single system to best suit the flow requirements of each hazard area.

### Description

The in-line balanced pressure proportioning system functions by maintaining an equal pressure in the foam concentrate and water inlets to the proportioner. This balancing ability allows the proportioner to be used over a wide range of flows and pressures. The system will also respond quickly and accurately to changes in the water inlet pressures and flow rates.

The system utilizes a 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 regulated pressure in the supply manifold that is higher than the pressure in the water supply line. The foam concentrate that is not required by the proportioner is returned to the atmospheric storage tank through the pressure control valve. The spool valve senses the foam concentrate pressure and automatically adjusts to balance it with the water pressure.

A duplex pressure gauge provides a reading of the foam concentrate and water pressures.



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The foam concentrate then enters the proportioner, where a built-in orifice regulates the flow of pressurized foam concentrate entering the water stream.

The units are available in six standard sizes to supply proportioners ranging from 2 in. to 8 in. with flow rates from 30 gpm to 5,500 gpm (114 Lpm to 20,820 Lpm) as listed under the System Information Table. Each unit consists of a foam proportioner, pressure balancing spool valve, duplex gauge, various control valves, drain valves, check valves, interconnecting brass pipe and fittings, stainless steel braid flexible pressure sensing hoses, and valve identification nameplates. The IBP-M models are also provided with a manual foam balancing valve. The in-line balanced pressure proportioner is factory pressure tested after being assembled.

### Approvals

The ANSUL® in-line balanced pressure proportioner assemblies are UL Listed with various ANSUL® foam concentrates. For specific concentrates and corresponding flow ranges, consult Johnson Controls Technical Services. USCG Approved for use with ANSULITE® A336 USCG 3x3 AR-AFFF concentrate.

### Specifications

The in-line balanced pressure proportioner assembly shall contain all necessary components including: foam proportioner, pressure balancing spool valve, duplex gauge, control valves, drain valves, check valves, interconnecting brass pipe, and valve identification nameplates.

Balancing shall be accomplished through the use of a spool-type pressure balancing valve. This valve shall sense foam concentrate and water inlet pressures at the outer ends of a dumbbell-shaped piston, and shall react to pressure changes by covering or uncovering the foam supply port to the proportioner. The balancing valve shall be low zinc (less than 15%) brass construction with a bronze piston and Buna-N rubber O-rings and seals. The in-line balanced pressure proportioner shall be completely pressure tested by the manufacturer.

Interconnecting foam concentrate piping shall be of brass construction. Pressure sensing hoses shall be TEFLON<sup>1</sup> material with a stainless braid cover and permanently attached brass couplings. Valve nameplates shall be provided, and shall specify valve function and normal operating position. The "foam concentrate" ball valve shall have a ring pin and chain for securing the ball valve in the operating position.

## System Information Table

The following table lists the nominal flow range for each proportioner size. For flow ranges using specific concentrates, consult Johnson Controls Technical Services. For USCG Approved flow ranges see Form No. F-2019034 (latest revision).

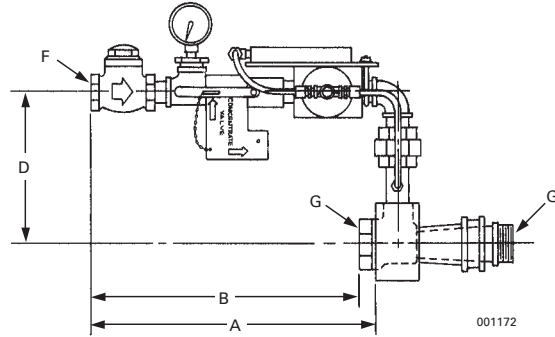
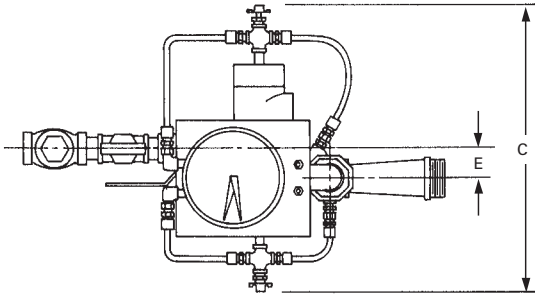
	Model IBP-2/IBP-2M	Model IBP-2 1/2/IBP-2 1/2M	Model IBP-3/IPB-3M	Model IBP-4/IBP-4M	Model IBP-6/IBP-6M	Model IBP-8/IBP-8M
Proportioner Size	2 in.	2 1/2 in.	3 in.	4 in.	6 in.	8 in.
Nominal Flow Range gpm	30-300	35-400	70-800	200-1,600	300-3,400	500-5,500
Nominal Flow Range (Lpm)	(114-1,136)	(132-1,514)	(265-3,028)	(757-6,057)	(1,136-12,870)	(1,892-20,819)

In-line balanced pressure proportioner systems will proportion slightly higher concentrations at the low end of the nominal flow range.

**Note:** Listed Nominal Flow Ranges do not apply for Alcohol Resistant Concentrate.

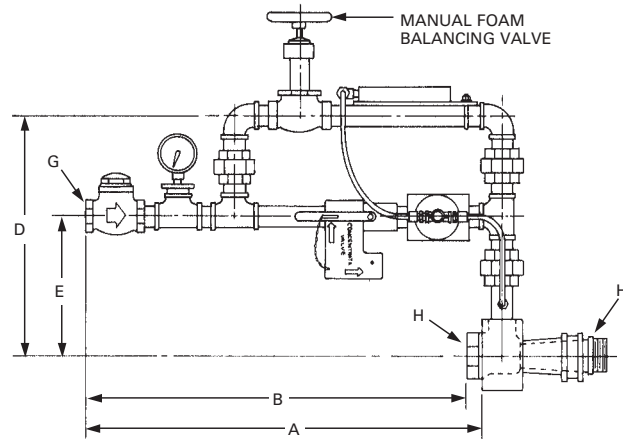
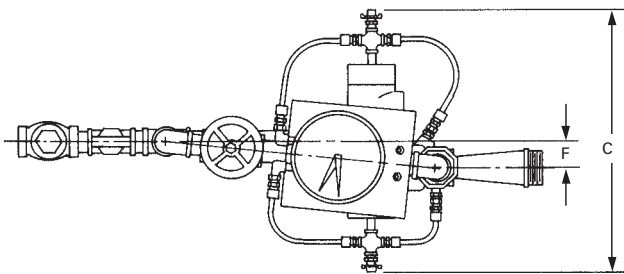
## In-Line Balanced Pressure Proportioners (Models IBP-2 to IBP-8)

	Model IBP-2		Model IBP-2 1/2		Model IBP-3		Model IBP-4		Model IBP-6		Model IBP-8	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
Dimension A	-		-		17	(430)	18 1/2	(470)	18 1/4	(460)	22 1/2	(570)
Dimension B	16	(410)	16	(410)	-		-		-		-	
Dimension C	16 3/4	(430)	16 3/4	(430)	16 3/4	(430)	16 3/4	(430)	16 3/4	(430)	20	(510)
Dimension D	9	(230)	9	(230)	9 3/4	(250)	10 1/2	(270)	12	(310)	14	(360)
Dimension E	1 3/4	(45)	1 3/4	(45)	1 3/4	(45)	1 3/4	(45)	1 3/4	(45)	2 3/16	(55)
Dimension F	1 NPT		1 NPT		1 NPT		1 1/2 NPT		1 1/2 NPT		2 NPT	
Dimension G	2 NPT		2 1/2 NPT		3*		4*		6*		8*	



## In-Line Balanced Pressure Proportioners With Manual Foam Balancing Valve (Models IBP-2M To IBP-8M)

	Model IBP-2M		Model IBP-2 1/2M		Model IBP-3M		Model IBP-4M		Model IBP-6M		Model IBP-8M	
	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)	in.	(mm)
Dimension A	-		-		25 1/2	(650)	28 1/2	(720)	28	(710)	32 3/8	(820)
Dimension B	24 1/2	(620)	24 1/2	(620)	-		-		-		-	
Dimension C	16 3/4	(430)	16 3/4	(430)	16 3/4	(430)	16 3/4	(430)	16 3/4	(430)	20	(510)
Dimension D	15 5/8	(400)	15 5/8	(400)	16 3/8	(420)	18	(460)	19 1/2	(500)	22 1/2	(570)
Dimension E	9	(230)	9	(230)	9 3/4	(250)	10 1/2	(270)	12	(310)	14	(360)
Dimension F	1 3/4	(45)	1 3/4	(45)	1 3/4	(45)	1 3/4	(45)	1 3/4	(45)	2 3/16	(55)
Dimension G	1 NPT		1 NPT		1 NPT		1 1/2 NPT		1 1/2 NPT		2 NPT	
Dimension H	2 NPT		2 1/2 NPT		3*		4*		6*		8*	



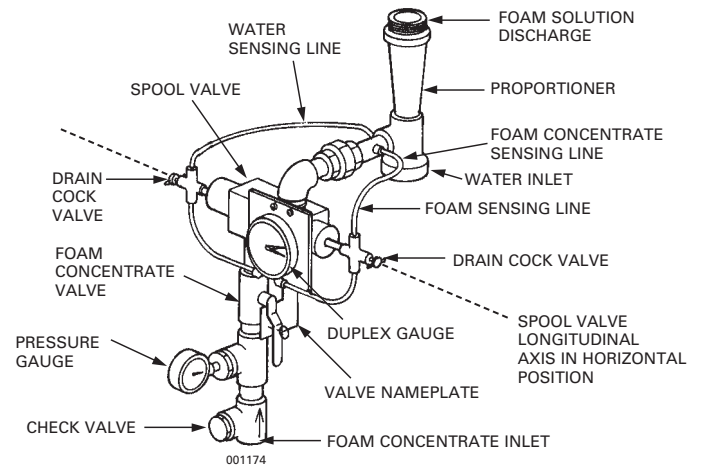
\*Between flange proportioner is standard. Upon request, proportioners can also be supplied in flanged style.

**Note:** ANSUL® in-line balanced pressure proportioners require a minimum of 5 pipe diameters of straight, unobstructed water inlet supply pipe.

## Ordering Information

Part No.	Part No. Standard Red Paint	Description	Approximate Shipping Weight	
			lb	(kg)
73700	73701	Model IBP-2 In-line proportioner assembly	45	(20.4)
73702	73703	Model IBP-2 1/2 In-line proportioner assembly	45	(20.4)
73704	73705	Model IBP-3 In-line proportioner assembly	50	(22.7)
73706	73707	Model IBP-4 In-line proportioner assembly	65	(29.5)
73708	73709	Model IBP-6 In-line proportioner assembly	80	(36.3)
73710	73711	Model IBP-8 In-line proportioner assembly	135	(61.2)
73712	73713	Model IBP-2M In-line proportioner assembly	60	(27.2)
73714	73715	Model IBP-2 1/2M In-line proportioner assembly	60	(27.2)
73716	73717	Model IBP-3M In-line proportioner assembly	65	(29.5)
73718	73719	Model IBP-4M In-line proportioner assembly	90	(40.8)
73720	73721	Model IBP-6M In-line proportioner assembly	105	(47.6)
73722	73723	Model IBP-8M In-line proportioner assembly	170	(77.1)

## In-Line Balanced Pressure Proportioner



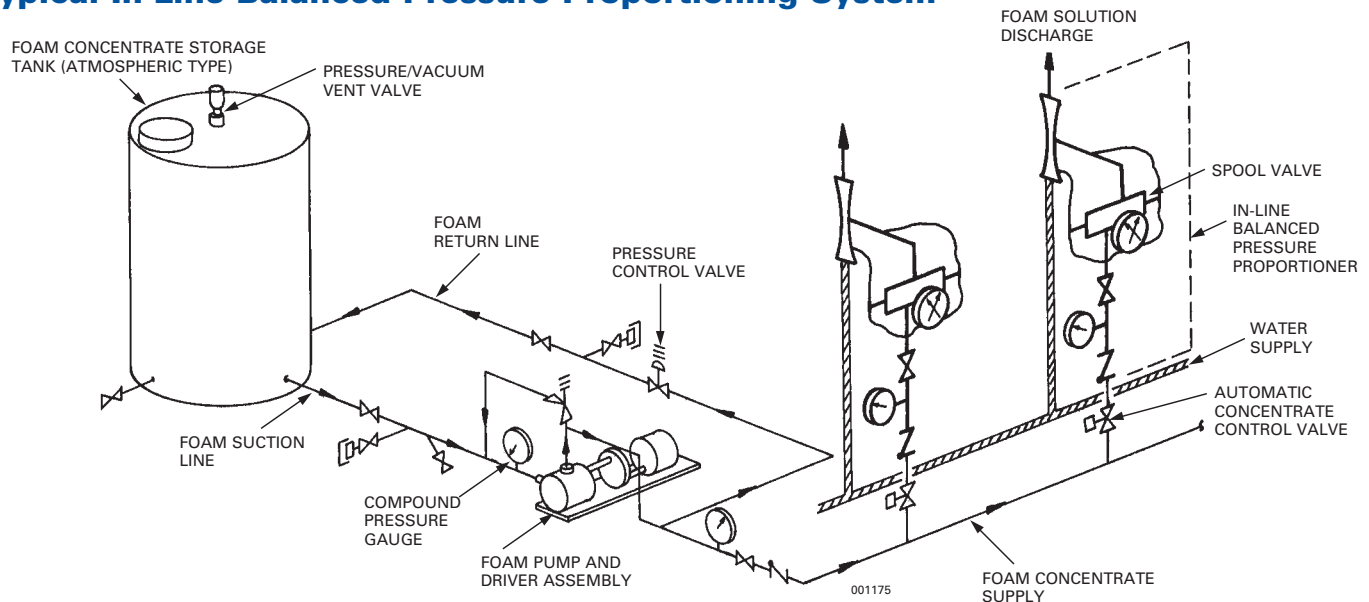
**Note:** Spool valve must be installed with the longitudinal axis in the horizontal (level) position.

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

<sup>1</sup>TEFLON is a trademark of its respective owner.

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## Typical In-Line Balanced Pressure Proportioning System

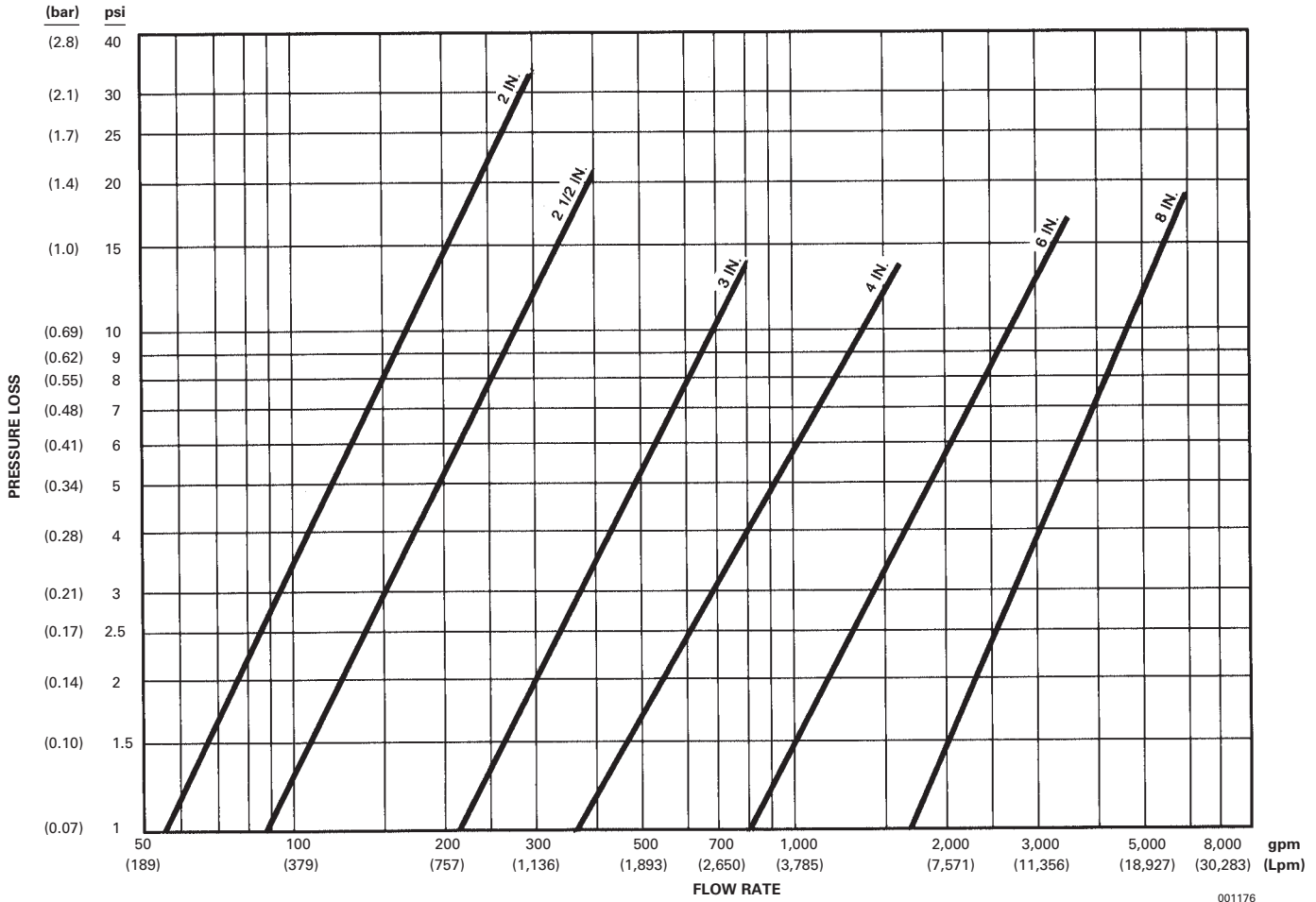


**NOTE:** Flush connections are only required with protein based foam concentrates.

### LEGEND:

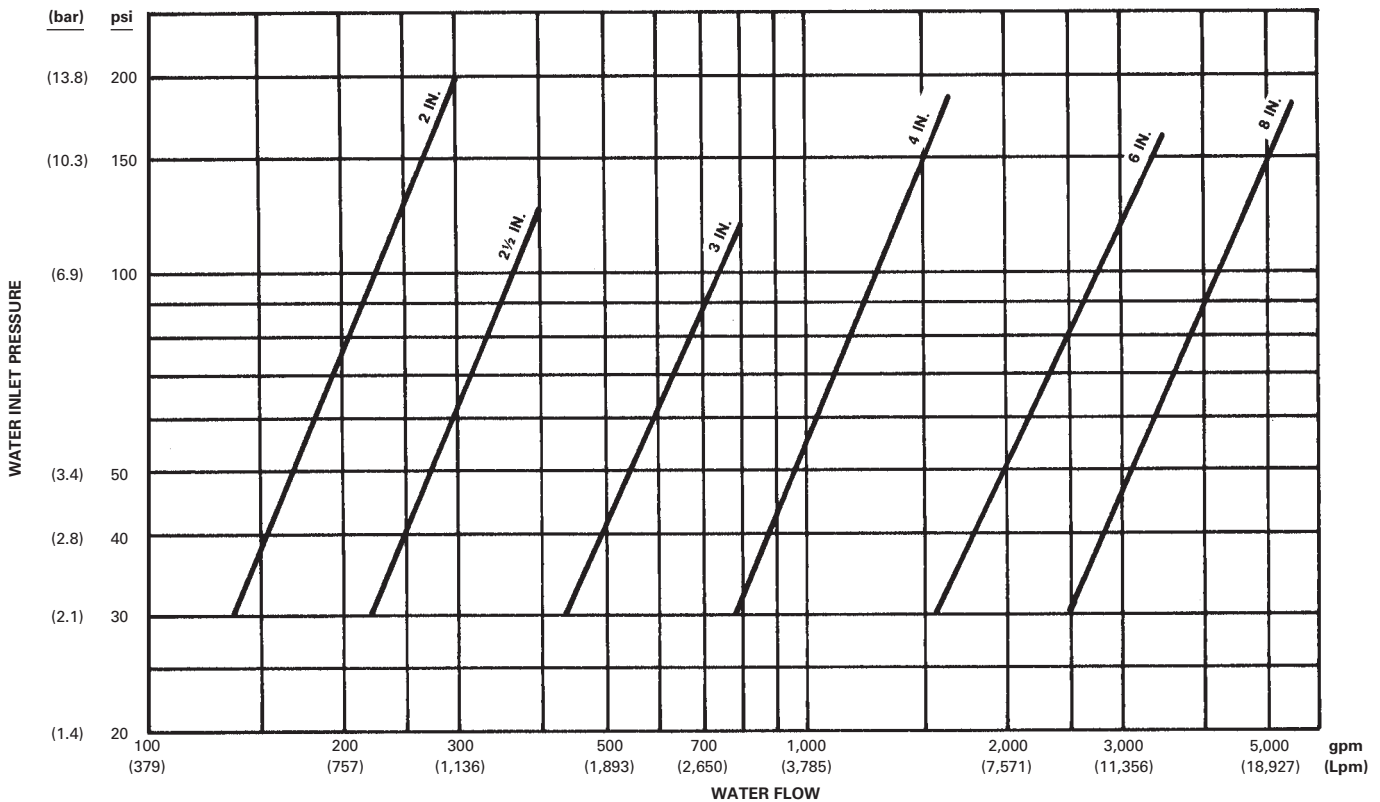
	SHUT-OFF VALVE		PRESSURE GAUGE		PROPORTIONER		SPOOL VALVE
	CHECK VALVE		DUPLEX PRESSURE GAUGE		FLUSH CONNECTION		DIRECTION OF FLOW
	PRESSURE RELIEF VALVE		COMPOUND PRESSURE GAUGE		STRAINER		

## Friction Loss Curves (Through Proportioner)



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## Minimum Inlet Pressure Versus Water Flow



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