



# FOAM PROPORTIONING EQUIPMENT

## ***FULL-RANGE PROPORTIONER***

### DESCRIPTION

The Buckeye Full-Range Proportioner is a low-flow rate proportioning device designed to meter the correct amount of foam concentrate into the water stream over a very wide range of flows and pressures. These units are designed to be used in conjunction with a bladder tank for closed-head wet-pipe foam/water sprinkler systems.

NFPA 30 (Flammable and Combustible Liquids Code), Paragraph 4.8.2.8 states that – **Foam/water sprinkler systems shall provide foam solution to operating sprinklers with 4 sprinklers flowing.** The Buckeye Full-Range Proportioner complies with this requirement.

The principle of operation for the Buckeye Full-Range Proportioner is based upon the use of a specially modified venturi profile. As the water passes through the inlet jet, a metering pressure drop in the annular area is created, which allows foam concentrate into the water stream through the specially designed metering profile. The Buckeye Full-Range Proportioner is ideally suited for closed-head foam/water sprinkler systems where, in the event of a fire, the flow likely starts low but increases as more sprinkler heads open. The ability to proportion at low flow rates is particularly important, since a review of data shows that in many cases, only 4 or 5 sprinkler heads operate during a fire, thus the low-flow proportioning accuracy of the Buckeye Full-Range Proportioner is ideally suited for closed-head foam/water sprinkler systems. In addition, the Buckeye Full-Range Proportioner exhibits a very low friction loss, even at the high end of the flow range.

Primary applications for the Buckeye Full-Range Proportioner are, closed-head foam/water sprinkler systems protecting warehouses storing flammable and combustible liquids and Group II aircraft hangars.

### FEATURES

- U. L. Listed.
- Proportions both standard A.F.F.F. and AR-A.F.F.F. concentrates accurately at low flow rates.
- Proportioner body and inlet nozzle are cast in ASTM C93200 SAE 600, BS100LG2 brass. Machine faced to ANSI B16.5 class 150.
- Installed between two 150 lb. flat-faced pipe flanges. Each face of the proportioner is machined with 32 grooves per inch to ensure a complete seal.
- The proportioner body is clearly marked with a flow direction arrow and a label to identify the type of foam concentrate and percentage ratio.
- Low permanent friction loss – 20 psi (1.36 Bar) at 2,500 Gpm (9,500 Lpm)
- Flanged foam concentrated inlet. Eliminates threads on foam concentrate supply line.



## FLOW RANGE

The following table lists the nominal flow range for the Full-Range Proportioner.

Consult the Buckeye Engineering Department for specific applications using other types of foam concentrates.

## BLADDER TANK FLOW RANGES

Size	AR-AFFF	AFFF
6"	25-2,500 Gpm (95-9,500 Lpm)	25-2500 Gpm (95-9,500 Lpm)

## DESIGN INFORMATION

To ensure proper operation of the Buckeye Full-Range Proportioner when used with a bladder tank, the pressure of the foam concentrate at the proportioner inlet must be within 2 psi of the incoming water pressure. For accurate proportioning over the flow range of the Proportioner, a minimum water inlet pressure of 30 psi (2.04 Bar) must always be provided during operation of the system.

Review the proportioner drawing for information on the minimum recommended length of straight pipe required upstream and downstream of the proportioner. Buckeye Fire Equipment suggests a minimum of five (5) pipe diameter of straight, unobstructed pipe upstream and downstream of proportioner.

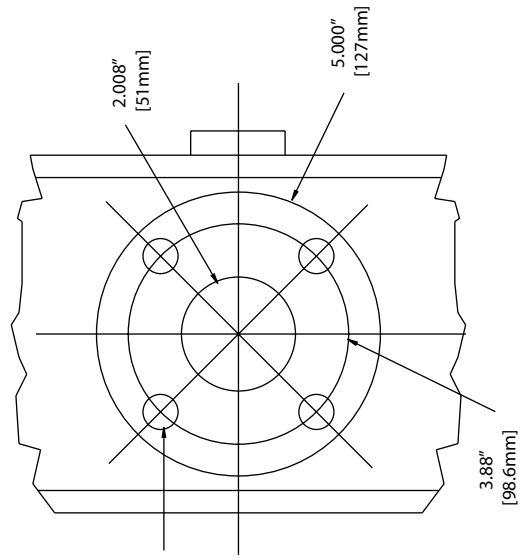
## ORDERING INFORMATION

When ordering a Buckeye Full-Range Proportioner the following information is required:

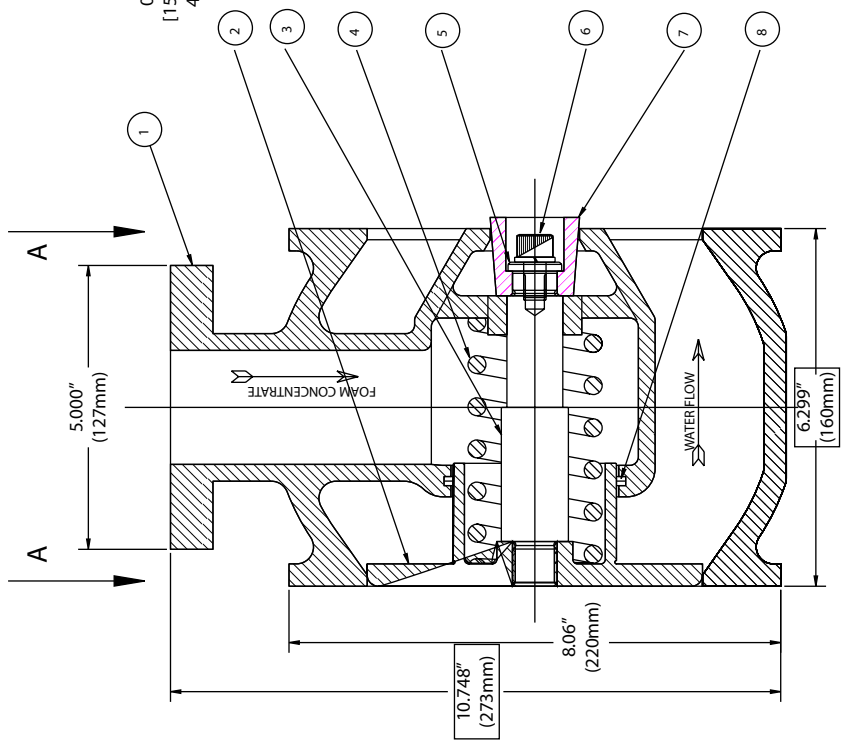
1. Type and percentage of foam concentrate.
2. Minimum and maximum water inlet pressure expected at the proportioner.
3. Minimum and maximum foam solution flow rates expected.

Shipping weight: 48 lb. (22 Kg).





VIEW : A - A



ITEM	QTY	DESCRIPTION	PART NO.	MATERIAL
8	1	O-RING	76.00X3.00	72NBR872
7	1	FOAM CONTROLLER	WRP-637	SAE 660
6	1	CYLINDER SCREW M10 X 18	WRP-606	ALSI 316
5	1	RETAINING RING	WRP-605	BRASS
4	1	SPRING	WRP-604	TITANIUM
3	1	SHAFT	WRP-603	ALSI 316
2	1	WATER SLIDE	WRP-602	SAE 660
1	1	CASING	WRP-601	SAE 660

Provide five (5) pipe diameters (30 inches {762 mm}) upstream & downstream of proportioner.



**6 Inch (150 mm) Wide Range Proportioner  
Flow Rate vs Friction Loss**

