

**S-ZF BETWEEN FLANGE INDUCTORS**

# HARDWARE

**Features**

*Fixed between-flange installation*

*High back pressure*

*High suction height*

*Can be customized to handle various flow rates*

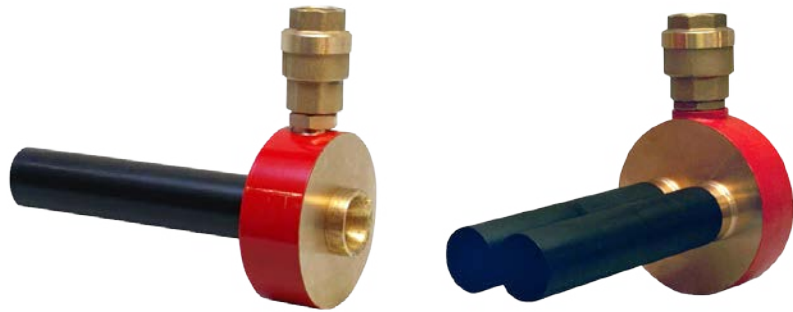
*Compatible with alcohol resistant foam concentrates*

**Description**

The SOLBERG S-ZF Inductor is used to mix foam concentrate with water when the foam concentrate is supplied from a tank at atmospheric pressure. The S-ZF inductor can be installed in deluge systems where open sprinklers are used, such as aircraft hangars and storage facilities. The inductor(s) are connected to the water line.

**Application**

The S-ZF inductor can be installed in all fixed flow systems, especially in areas where deluge nozzles are used, such as storage facilities and aircraft hangars.



**Operation/Installation**

The S-ZF is installed in the pipework between two flanges. The S-ZF works using the venturi principle (i.e., foam concentrate is sucked into the inductor without using a foam pump). Both low and high viscosity foam concentrates can be used with the S-ZF. Depending on the requested flow rate, pressure, foam concentrate type and proportioning ratio, the inductor will be equipped with the exact orifice at the entry of the foam pipe. Induction performance and suction height can be adjusted up to a physical limit of approximately 8.0 m (26.0'). To ensure correct proportioning over the designed flow range of the inductor, the minimum water inlet pressure shall be 4 bar (58 psi) during operation of the system.

Note: See inductor dimension tables for information on the minimum

recommended length of straight pipe required upstream and downstream of the controller.

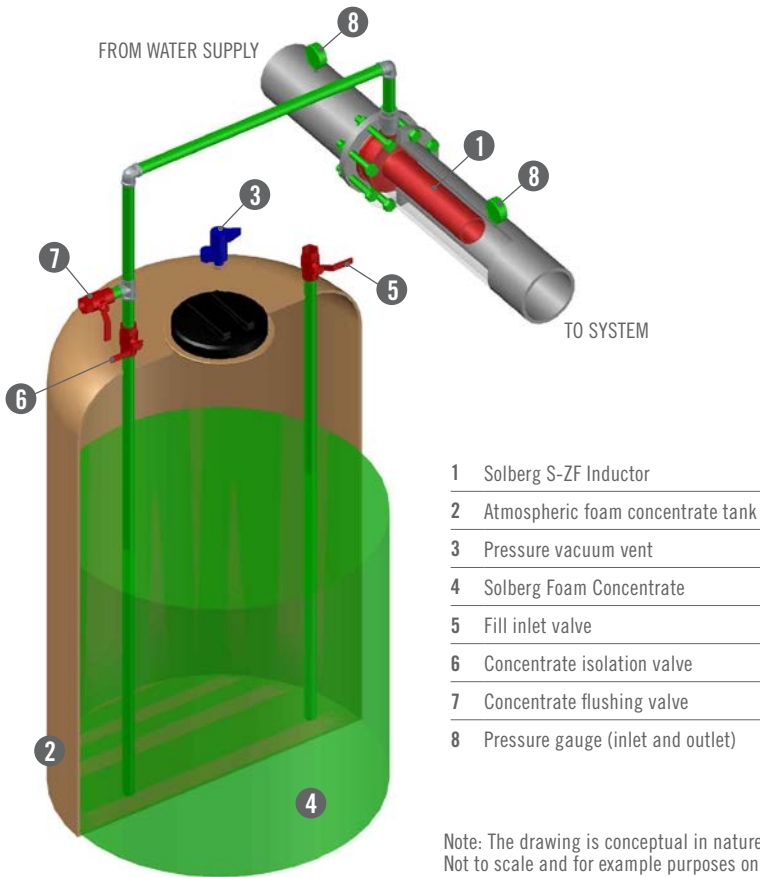
**Optional**

SOLBERG S-ZF inductor can be customized to handle a variety of flow rates as well as high viscosity alcohol resistant concentrates.

**Inductors without balancing valve**

To obtain a 34% pressure drop over the inductor and ensure the proper functioning of the inductor, the system after the inductor must have a K-factor which is 27% higher than the K-factor of the inductor when inducting at 3%, and 30.5% higher when inducting at 6%. If the K-factor, on the system after the inductor, is less than 1.22 x the K-factor of the inductor, the suction ceases completely.

**Typical inductor installation**



**Orifice Calculation**

$$\frac{(Q_v + Q_s) \sqrt{H}}{Q_v \sqrt{0.66 H}} = A$$

- Qs = 1%, 3% or 6%
- Qv = Water flow rate
- Qs = Foam Concentrate flow rate
- H = Water pressure upstream of the inductor
- A = Orifice diameter

**Order Requirements**

Each inductor is factory calibrated to match the specific system requirements. To ensure that the correct performance is achieved, the following parameters must be defined at time of order placement:

- Inlet pressure
- Total system flow
- Foam type & viscosity
- Mixing percentage
- Suction height
- Horizontal suction pipe length

**Ordering Information**

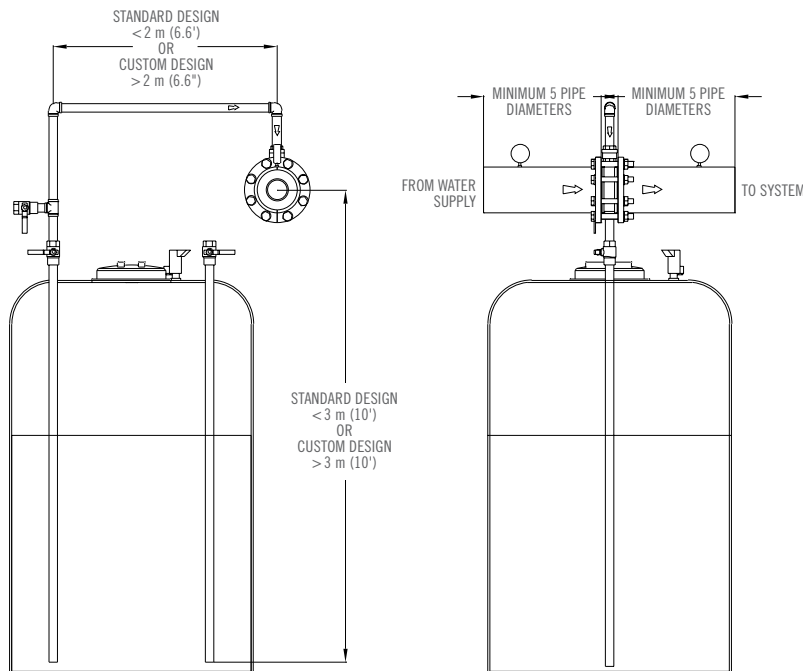
S-ZF BETWEEN FLANGE INDUCTORS		APPROXIMATE SHIPPING WEIGHT	
		kg	lb
30220	S-ZF Between Flange Inductor, DN40 (1.5")	3	7
30221	S-ZF Between Flange Inductor, DN50 (2.0")	4	9
30222	S-ZF Between Flange Inductor, DN65 (2.5")	4	9
30223	S-ZF Between Flange Inductor, DN80 (3.0")	6	14
30224	S-ZF Between Flange Inductor, DN100 (4.0")	7	16
30225	S-ZF Between Flange Inductor, DN150 (6.0")	21	47
30226	S-ZF Between Flange Inductor, DN200 (8.0")	40	89
30227	S-ZF Between Flange Inductor, DN201 (8.0"-S)	46	102

### Inductor Specifications

PART NUMBER	30220	30221	30222	30223	30224	30225	30226	30227
Size	1.5"	2.0"	2.5"	3.0"	4.0"	6.0"	8.0"	8.0"-S
Max. flow rate l/min (gpm)	127 (480)	265 (1000)	423 (1600)	529 (2000)	872 (3300)	1744 (6600)	2616 (9900)	4359 (16500)
Min. flow rate l/min (gpm)	22 (80)	32 (120)	64 (240)	96 (360)	146 (550)	291 (1100)	436 (1650)	436 (1650)
Max. inlet pressure bar (psi)	233 (16)	233 (16)	233 (16)	233 (16)	233 (16)	233 (16)	233 (16)	233 (16)
Min. inlet pressure bar (psi)	59 (4)	59 (4)	59 (4)	59 (4)	59 (4)	59 (4)	59 (4)	59 (4)
Pressure drop	35%	35%	35%	35%	35%	35%	35%	35%
K-Factor l/min (gpm)	40-120 (2.9-8.4)	60-180 (4.2-17.4)	120-400 (8.4-27.8)	180-500 (12.5-34.7)	275-1000 (19.1-57.2)	550-2000 (37.9-114.3)	825-3000 (56.8-171.4)	1375-5000 (56.8-285.6)
Proportioning rate	1, 3 or 6%	1, 3 or 6%	1, 3 or 6%	1, 3 or 6%	1, 3 or 6%	1, 3 or 6%	1, 3 or 6%	1, 3 or 6%
Suction height (max.)	3 m (10')	3 m (10')	3 m (10')	3 m (10')	3 m (10')	3 m (10')	3 m (10')	3 m (10')
Flange type PN16*	DN40 (1.5")	DN50 (2")	DN65 (2.5")	DN80 (3")	DN100 (4")	DN150 (6")	DN200 (8")	DN201 (8")
Pipe length upstream and downstream	5 x $\emptyset$	5 x $\emptyset$	5 x $\emptyset$	5 x $\emptyset$	5 x $\emptyset$	5 x $\emptyset$	5 x $\emptyset$	5 x $\emptyset$
Weight kg (lb)	3 (7)	4 (9)	4 (9)	6 (14)	7 (16)	21 (47)	40 (89)	46 (102)
Material	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze

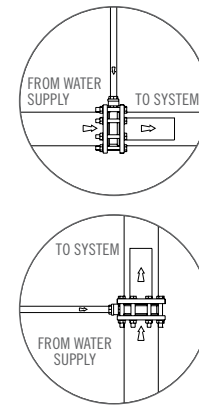
\* 4.0" to 8.0" flanges fit ANSI #150 but 1.5", 2.0", 2.5" and 3.0" need machining to fit

### TYPICAL DESIGN LAYOUT



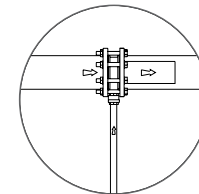
Note: The drawing is conceptual in nature. Not to scale and for example purposes only.

### ADVISABLE POSITIONS



### NON-ADVISABLE POSITION

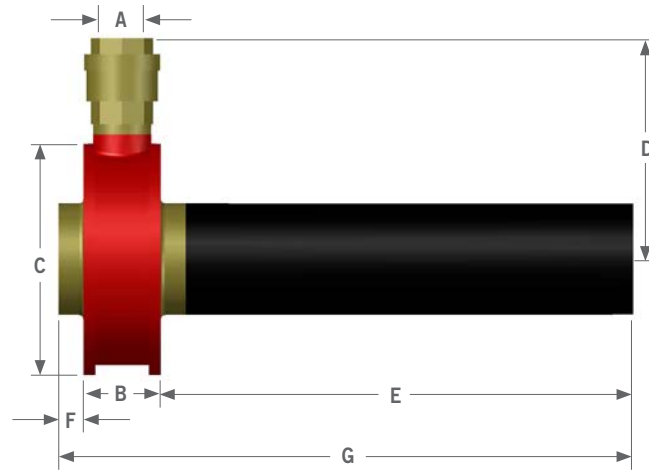
(Dirt can collect on the check valve in this position)



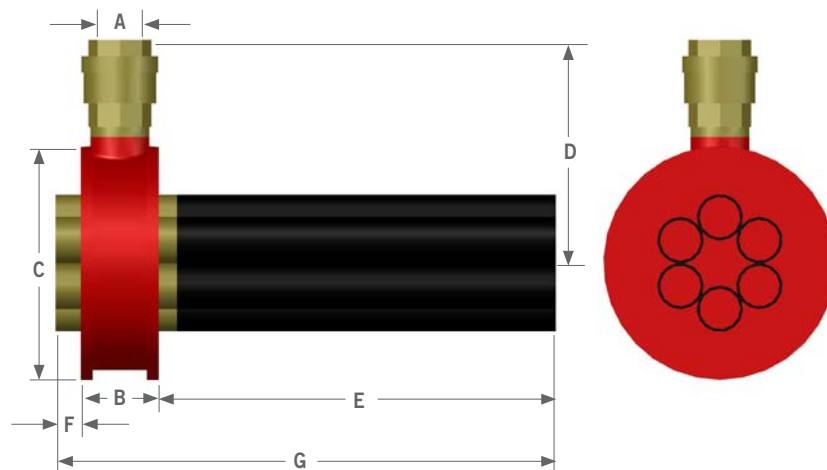
*Dimensions*

PART NUMBER	APPROXIMATE DIMENSIONS millimetres (inches)							
	30220	30221	30222	30223	30224	30225	30226	30227
<b>Foam inlet (A)</b>	3/4"	3/4"	1"	1"	1-1/2"	2"	2-1/2"	3"
<b>Between flange dimensions (B)</b>	38 (1.5)	38 (1.5)	45 (1.8)	52 (2.1)	58 (2.3)	70 (2.8)	85 (3.4)	85 (3.4)
<b>Body size (C)</b>	91 (3.6)	106 (4.2)	126 (5)	143 (5.7)	160 (6.3)	215 (8.5)	270 (10.7)	270 (10.7)
<b>Height (D)</b>	112 (4.5)	120 (4.8)	137 (5.4)	148 (5.9)	187 (7.4)	230 (9.1)	340 (13.4)	370 (14.6)
<b>Length (E)</b>	223 (8.8)	223 (8.8)	360 (14.2)	360 (14.2)	343 (13.6)	335 (13.2)	330 (13)	330 (13)
<b>Length (F)</b>	12 (0.5)	12 (0.5)	15 (0.6)	9 (0.4)	20 (0.8)	25 (1)	20 (0.8)	15 (0.6)
<b>Total length (G)</b>	273 (10.8)	273 (10.8)	420 (16.6)	421 (16.6)	421 (16.6)	430 (17)	435 (17.2)	430 (17)

**SINGLE BARREL**

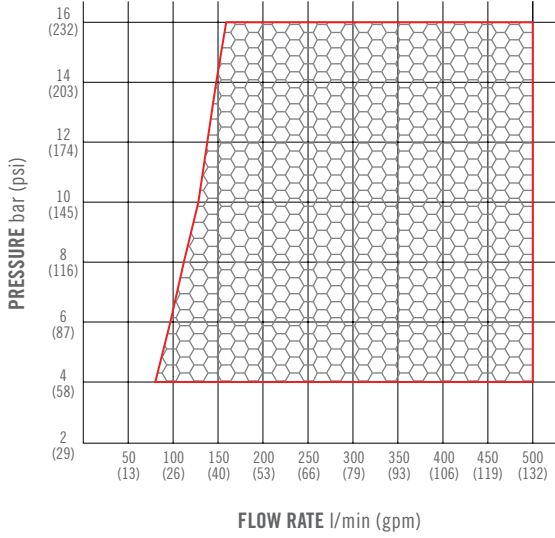


**MULTIPLE BARREL**

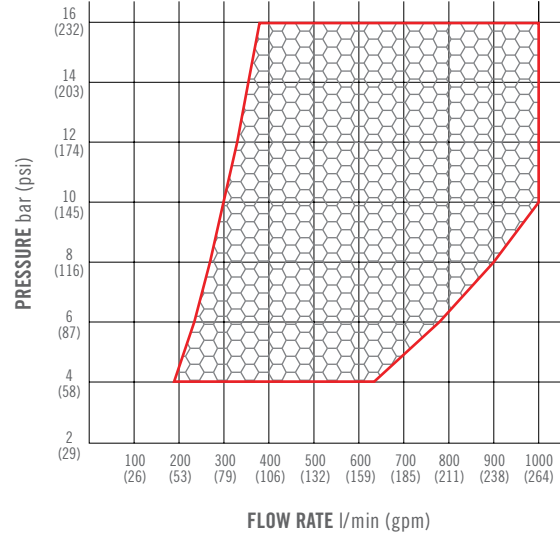


Pressure loss curves

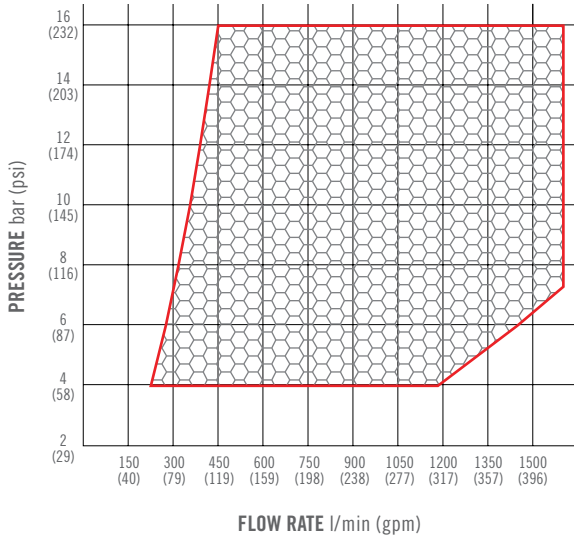
S-ZF 1.5"



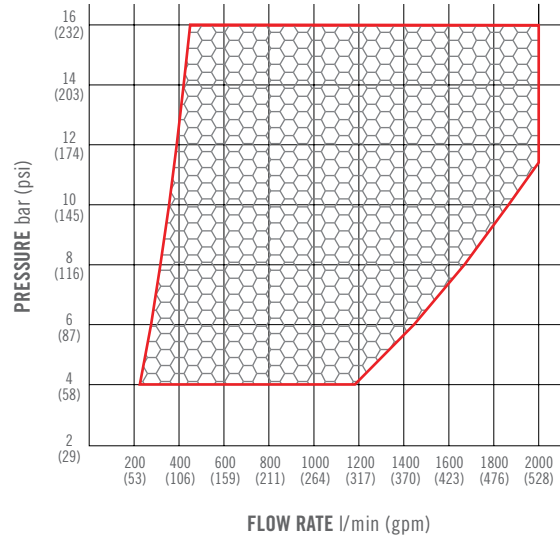
S-ZF 2.0"



S-ZF 2.5"

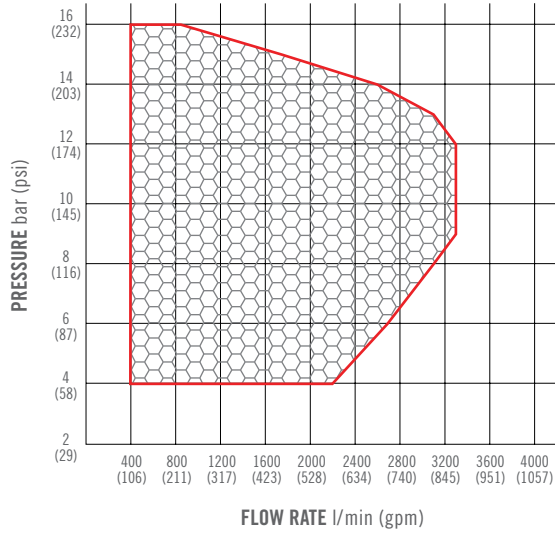


S-ZF 3.0"

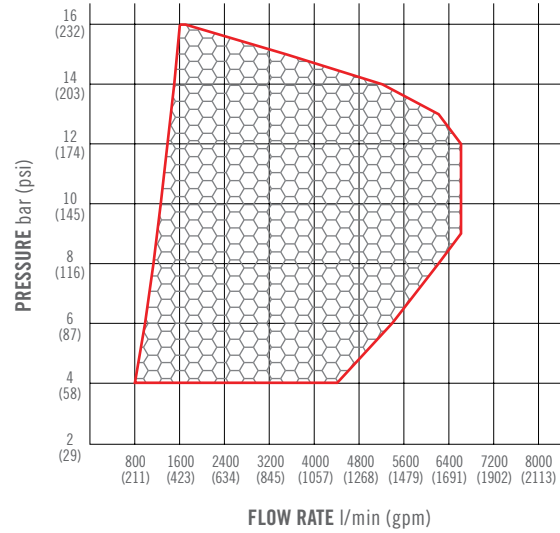


Pressure loss curves

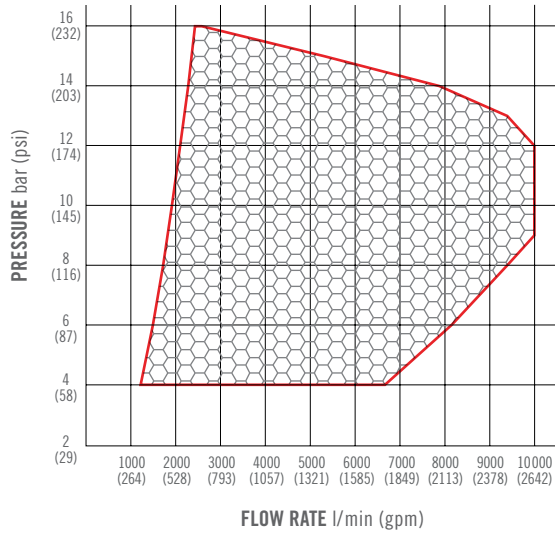
S-ZF 4.0"



S-ZF 6.0"



S-ZF 8.0"



S-ZF 8.0"-S

