ANSUL®
ZF Inductor

Features
- Factory calibrated to any flow and pressure within the working range
- Standard suction height of 11.5 ft (3.5 m) – suction heights up to approximately 20 ft (6 m) available by request
- Standard foam induction rates available with ANSULITE AFC38 or AFC-3MS 3% AFFF, ANSULITE A334-LV 3x3 AR-AFFF, or ANSUL JET-X 2% High-Expansion foam concentrates – other agents and induction rates available by request
- Can be installed in a horizontal or vertical plane between ANSI Class 150 or DIN PN16 flanges
- Grooved connection and check valve on foam concentrate inlet

Application
The ANSUL® ZF Inductor injects foam concentrate into a water stream in a foam system with fixed flow rates. The inductor is designed to handle high back-pressures, extending the allowable distance from the point of foam injection to the point of foam application.

The Inductor can be calibrated for use with many types of foam concentrate, making it suitable for a variety of foam system applications. The inductor is designed to be installed between flanges with a suction line installed to draw foam from an atmospheric foam concentrate tank.

Typical applications include deluge systems with sprinklers or high-expansion generators such as those used in aircraft hangers or storage facilities.

Description
The ANSUL ZF Inductor consists of a bronze body, foam inlet, metering orifice, and recovery horn. The foam inlet has a grooved connection adapter and check valve installed by the manufacturer. The body is labeled to show flow direction and system information such as concentrate type, induction rate, flow rate, and pressure. The orifice is sized by the manufacturer for the specific flow and pressure in which the inductor will be installed.

Standard inductor installations may have suction heights of up to 11.5 ft (3.5 m). Total concentrate piping must not exceed the maximum suction height as a combination of friction loss and elevation head loss from the lowest possible foam concentrate level that can be accessed by the suction line. For suction heights above 11.5 ft (3.5 m), contact Technical Services.

The inductor is installed between two ANSI Class 150 or DIN PN16 flanges. A minimum amount of straight pipe is necessary upstream and downstream of the inductor. See Dimensions J and K under Inductor Dimensions for recommended minimum pipe lengths at each inductor size.

Typical ANSUL Inductor System

Note: The above drawing is not to scale. For example purposes only.

A. ANSUL ZF Inductor with check valve installed between flanges
B. Recovery horn in downstream piping
C. Foam concentrate storage tank (atmospheric type)
D. Pressure/vacuum vent
E. Suction height (Maximum of 11.5 ft (3.5 m) for standard installations)
F. Foam concentrate level in storage tank
G. Inaccessible foam concentrate below suction line
H. Concentrate shut-off valve
I. Flushing line connection
J. Minimum straight pipe upstream from the inductor
K. Minimum straight pipe downstream from the inductor
L. Fill connection
M. Inlet and outlet pressure gauges
The fire pump must supply 295 gpm (1,117 Lpm) at 160 psi (11.0 bar).

A 4 in. ANSUL ZF100 Inductor should be ordered at 295 gpm (1,117 Lpm) and 146 psi (10.1 bar) for use with 2% high-expansion foam concentrate.

Installation Requirements

1. The inductor is to be installed between flanges with the recovery horn inserted into the downstream piping.

2. Total concentrate piping must not exceed 11.5 ft (3.5 m) equivalent pipe as a combination of friction loss and elevation head loss from the lowest possible foam concentrate level that can be accessed by the suction line.

3. Downstream pipe, fittings, elevation head, and discharge devices must not result in inductor outlet back-pressure in excess of 65% of inductor inlet pressure. Consult with the system designer to verify.

4. A minimum amount of straight pipe upstream and downstream of the inductor is recommended. See Dimensions J and K under Inductor Dimensions for recommended minimum pipe lengths.

5. A check valve must be installed in the foam concentrate line with the direction of flow from the foam concentrate storage tank to the inductor. The required check valve is installed on the ANSUL ZF Inductor foam concentrate inlet by the manufacturer.

6. A T-fitting and additional valving on the concentrate line to allow flushing after discharge is recommended.

7. The ZF100, ZF150, ZF200, and ZF200S are designed to be installed between two 4 in., 6 in., 8 in., or 8 in. ANSI Class 150 flanges respectively; or between two DN100, DN150, DN200, or DN200 DIN PN16 flanges.

8. Piping to foam concentrate must not be smaller than the concentrate inlet connection. See Dimension B under Inductor Dimensions.

NOTICE

Exceeding foam concentrate line limitations or using pipe sizes smaller than the foam concentrate inlet of the line proportioner, may reduce concentration percentages.

Ordering Information

System requirements (inlet pressure, flow rate, lift height, concentrate name, and induction rate) must be provided at the time of order to properly manufacture the inductor. Standard units must be provided within the suction height and working range limitations for use with ANSULITE AFC3B or AFC-3MS 3% AFFF, ANSULITE A334-LV 3x3 AR-AFFF, or ANSUL JET-X 2% High-Expansion foam concentrates. Additional information or manufacturing time may be required for nonstandard installations.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Model</th>
<th>Approximate Shipping Weight</th>
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<tbody>
<tr>
<td>443191</td>
<td>ZF100</td>
<td>25 (11)</td>
</tr>
<tr>
<td>443192</td>
<td>ZF150</td>
<td>47 (21)</td>
</tr>
<tr>
<td>443193</td>
<td>ZF200</td>
<td>88 (40)</td>
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<tr>
<td>443194</td>
<td>ZF200S</td>
<td>102 (46)</td>
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</table>
**Inductor Dimensions**

![Diagram of Inductor Dimensions]

**Note:** All dimensions are for reference only. Actual units may differ from the example drawings.

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B'</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZF100</td>
<td>6 5/16 (160)</td>
<td>1 1/2 (38.1)</td>
<td>8 1/2 (215)</td>
<td>2 3/4 (70.0)</td>
<td>2 3/4 (70)</td>
<td>16 9/16 (421)</td>
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<tr>
<td>ZF150</td>
<td>8 7/16 (215)</td>
<td>2 (50.8)</td>
<td>10 3/16 (258)</td>
<td>2 3/4 (70.6)</td>
<td>2 3/4 (70)</td>
<td>16 15/16 (430)</td>
</tr>
<tr>
<td>ZF200</td>
<td>10 5/8 (270)</td>
<td>2 1/2 (63.5)</td>
<td>14 7/16 (366)</td>
<td>–</td>
<td>–</td>
<td>16 15/16 (431)</td>
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<tr>
<td>ZF200S</td>
<td>10 5/8 (270)</td>
<td>3 (76.2)</td>
<td>15 3/4 (400)</td>
<td>–</td>
<td>–</td>
<td>16 15/16 (431)</td>
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</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>G</th>
<th>H''</th>
<th>I</th>
<th>J**</th>
<th>K***</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZF100</td>
<td>13 1/2 (343)</td>
<td>2 5/16 (58)</td>
<td>13/16 (20)</td>
<td>x 5</td>
<td>20 (500)</td>
</tr>
<tr>
<td>ZF150</td>
<td>13 3/16 (335)</td>
<td>2 3/4 (70)</td>
<td>1 (25)</td>
<td>x 5</td>
<td>30 (750)</td>
</tr>
<tr>
<td>ZF200</td>
<td>13 (330)</td>
<td>3 3/8 (86)</td>
<td>9/16 (15)</td>
<td>x 5</td>
<td>40 (1,000)</td>
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<tr>
<td>ZF200S</td>
<td>13 (330)</td>
<td>3 3/8 (86)</td>
<td>9/16 (15)</td>
<td>x 5</td>
<td>40 (1,000)</td>
</tr>
</tbody>
</table>

**Notes:**
1. Minimum foam inlet pipe size
2. Take-out (between-the-flange) dimension
3. Minimum recommended straight pipe length upstream of inductor
4. Minimum recommended straight pipe length downstream of inductor from recovery horn
System Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Inductor Size</th>
<th>Minimum Flow Rate</th>
<th>Maximum Flow Rate</th>
<th>Minimum Inlet Pressure</th>
<th>Maximum Inlet Pressure</th>
<th>K-Factor Range</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>gpm (Lpm)</td>
<td>gpm (Lpm)</td>
<td>psi (bar)</td>
<td>psi (bar)</td>
<td>standard (metric)</td>
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<tr>
<td>ZF100</td>
<td>4 in. DN100</td>
<td>145 (550)</td>
<td>872 (3,300)</td>
<td>58 (4)</td>
<td>232 (16)</td>
<td>19-57 (275-1,000)</td>
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<td>ZF150</td>
<td>6 in. DN150</td>
<td>290 (1,100)</td>
<td>1,744 (6,600)</td>
<td>58 (4)</td>
<td>232 (16)</td>
<td>38-114 (550-2,000)</td>
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<tr>
<td>ZF200</td>
<td>8 in. DN200</td>
<td>435 (1,650)</td>
<td>2,615 (9,900)</td>
<td>58 (4)</td>
<td>232 (16)</td>
<td>57-172 (825-3,000)</td>
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<td>ZF200S</td>
<td>8 in. DN200</td>
<td>762 (2,750)</td>
<td>4,359 (16,500)</td>
<td>58 (4)</td>
<td>232 (16)</td>
<td>95-286 (1,375-5,000)</td>
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</tbody>
</table>

Working range of ZF100

![Graph showing the working range of ZF100](image)

Working range of ZF150

![Graph showing the working range of ZF150](image)
Working range of ZF200

![Graph showing the working range of ZF200 with pressure range psi (bar) and flow range gpm (Lpm).]

Working range of ZF200S

![Graph showing the working range of ZF200S with pressure range psi (bar) and flow range gpm (Lpm).]

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