

# SPS-9 FOAM MAKER

NDD070

Approvals: UL, ULC

- Superior Seal Protection
- Superior Foam Expansion For Excellent Foam Performance
- Low Cost Installation Without Welding
- Corrosion Resistant Polyester Finish
- Double Aeration Foam Maker
- Open Top And Covered Tank Protection



## Description

The SPS-9 foam maker is designed to deliver fully aspirated foam directly to the annular seal area of Open Top Floating Roof storage tanks and Covered Floating Roof storage tanks for fire extinguishment or vapor suppression. Fully aspirated foam provides the most effective performance for all types of foam concentrates, resulting in quick, efficient control of an incident while it is still confined to the seal area. SPS-9 foam makers are classified as Type II discharge devices in accordance with NFPA Standard 11, and deliver low expansion foam directly onto the fuel surface with a minimum of foam submergence and fuel agitation. Minimizing submergence and agitation increases the effectiveness of the foam blanket, resulting in more efficient operation and superior extinguishing capabilities. Fixed discharge outlets have the added advantage of directing the entire flow into the seal area regardless of weather conditions for the most effective utilization of foam resources. Fixed Seal Protection Systems have a long history of prompt and safe extinguishment, with many incidents controlled so efficiently, that they are often not reported outside the confines of the facility.

The SPS-9 Foam Maker produces foam by introducing air into the foam solution stream in two stages. The inlet of the foam maker is fitted with a factory installed high efficiency venturi jet, designed to draw air into the foam

solution stream. This jet produces superior foam expansion and 25% drainage life. Air is drawn into the foam solution through a series of annular holes located on the foam maker. To prevent obstruction, a stainless steel screen protects the air inlet holes. The aerated foam solution is discharged against the deflector assembly, which causes the foam to slide gently down the tank wall into the seal area.

The SPS-9 is designed for easy, low cost installation on the top angle of Open Top Floating Roof storage tanks with existing wind shields. In addition, they may be used on Covered Floating Roof storage tanks that are not vapor tight above the internal floating roof (vented to atmosphere). SPS-9 foam makers are compatible with all types of foam concentrate: protein, fluoroprotein, AFFF, and AR-AFFF. Piping coupled to the unit can be linked to a fixed foam proportioning system, or terminated a safe distance from the tank, where foam solution can be delivered via mobile fire apparatus or portable foam proportioning equipment. Installation should be made in accordance with applicable codes and standards.

## Features

- Superior foam expansion for excellent foam performance
- Low cost installation for covered floating roof tanks
- Low cost installation for open top floating roof tanks with existing weather shields

- Corrosion resistant red or yellow polyester finish
- Optional corrosion resistant stainless steel models

## Applications

- Open top and covered floating roof tanks

## Specifications

The SPS-9 foam maker type delivery system shall include a dual air aspirating foam maker with 2½"-150# FF flanged inlet and 4"-150# FF flanged outlet connection, high efficiency venturi orifice, air inlet screen, and split, shallow or split shallow deflector. Solution flow shall be controlled via a high efficiency venturi style, jet (orifice) with capacities from 14.1 gpm at 50 psi (53.4 lpm at 3.5 bar) to 147 gpm at 150 psi (556.4 lpm at 10.4 bar). See Flow Capacity Chart on page 3 to determine the correct orifice size to meet the flow requirement. The jet (orifice) shall be of cast brass construction with a radius inlet profile for maximum efficiency. A series of annular holes shall be located on the foam maker body to allow air to be drawn into the foam solution for generation of expanded foam. A stainless steel screen shall protect the air inlet holes. The foam maker body is carbon steel, abrasive blasted and coated with a red or yellow fused polyester powder finish before assembly to insure complete internal coverage. The foam maker shall also be available in corrosion resistant stainless steel models.

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**Specifications (cont.)**

The Open Top Floating Roof Configuration shall utilize a split deflector since it is unlikely the roof will rise to a point where the seal will contact the deflector. A stud flange is not normally required for this type of installation since both sides of the wind shield should be accessible for assembly.

The Covered Floating Roof Configuration is for use on tanks that are not vapor tight above the internal floating roof (vented to atmosphere). A shallow or split shallow deflector shall be used since the roof could rise to a position where the seal will contact the deflector. The shallow type deflector shall be designed to allow the seal to pass over without damage. A stud flange shall be provided to allow installation without access to both sides of the tank wall during assembly.

It shall be possible to test the foam maker without discharging into the tank seal area. This shall be accomplished by means of rotating the foam maker assembly 180° away from the wind shield and deflector assembly.

**Approvals and Listings**

- UL Listed
- ULC Approved

**Technical Information**

Material of Construction:

Deflector.....Carbon Steel  
Foam Maker Body.....Carbon Steel  
(316L Stainless Steel Optional)  
Foam Maker Jet/Receiver.....Brass  
Air Strainer.....Stainless Steel  
Hardware.....Zinc Plated

Operating Pressure

Standard.....50 PSI (3.4 Bar) to  
150 PSI (10.4 Bar)

Flow Capacity:

Smallest Orifice .....14.1 GPM (53.4 LPM)  
@ 50 PSI (3.5 Bar)  
24.5 GPM (92.7 LPM)  
@ 150 PSI (10.4 Bar)  
Largest Orifice.....84.8 GPM (321.0 LPM)  
@ 50 PSI (3.5 Bar)  
147.0 GPM (556.4 LPM)  
@ 150 PSI (10.4 Bar)

Finish:

Carbon Steel Components:

Abrasive Blast to SSPC-SP6. Chemical wash, rinse, and seal. Oven baked fusion coated polyester, 3 mils dry film thickness (DFT), red or yellow color.

All Other Components .... Natural Finish  
Stainless Steel Models ..... Natural Finish

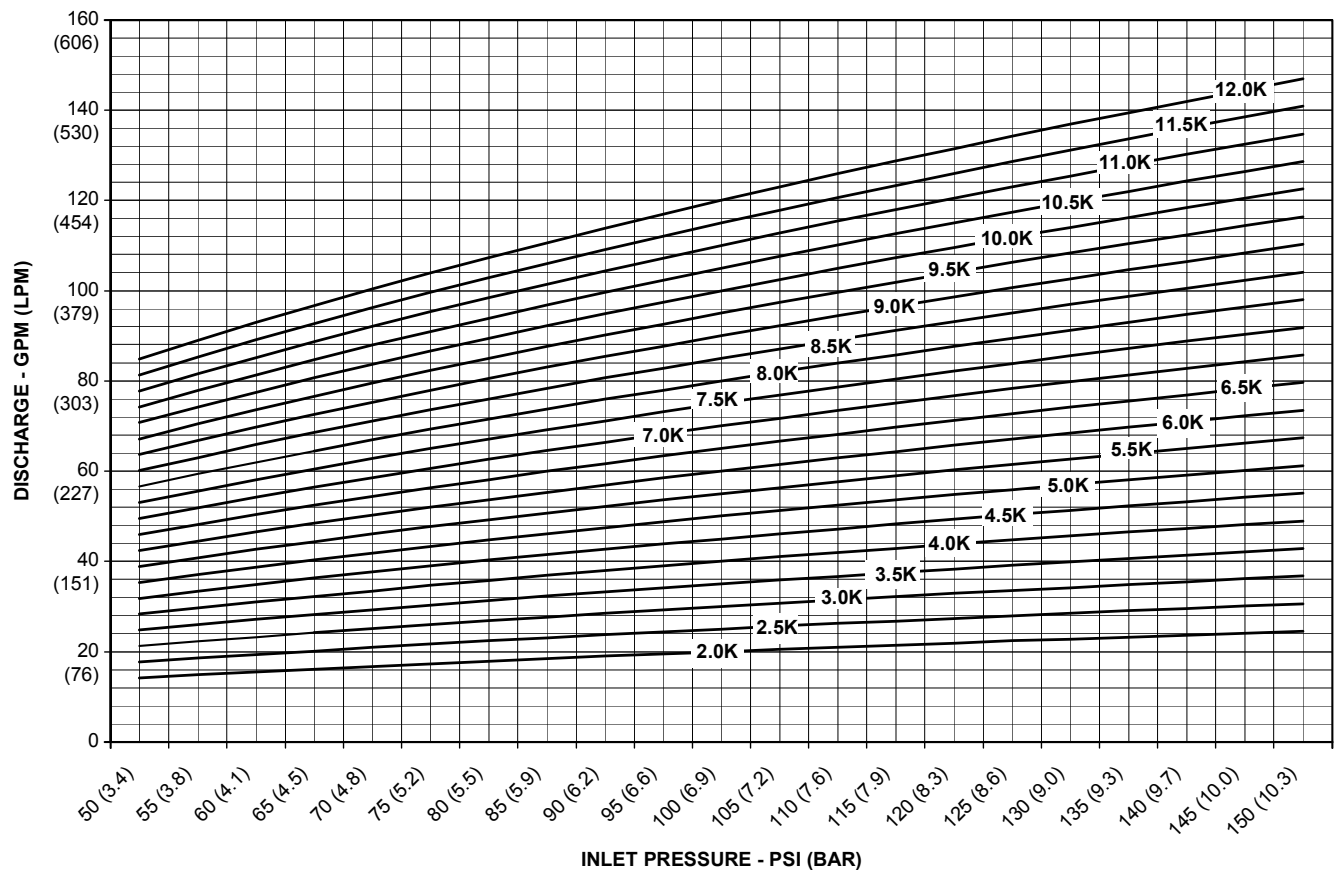
Weight ..... 34 lbs. (15 kg)

**Options**

Shallow or Split Shallow Deflector and Stud Flange for mounting on Covered Floating Roof Tanks

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## To select the correct K Factor:

Locate the desired inlet pressure along the horizontal axis. Next move vertically to the desired foam maker flow rate. If the intersection of flow and pressure do not fall exactly on one of the K factor lines, choose the next highest K factor line above the flow and pressure intersection point.

**Flow is governed by the equation  $Q = K \sqrt{P}$  where:**

**Q** is the flow in gallons per minute.

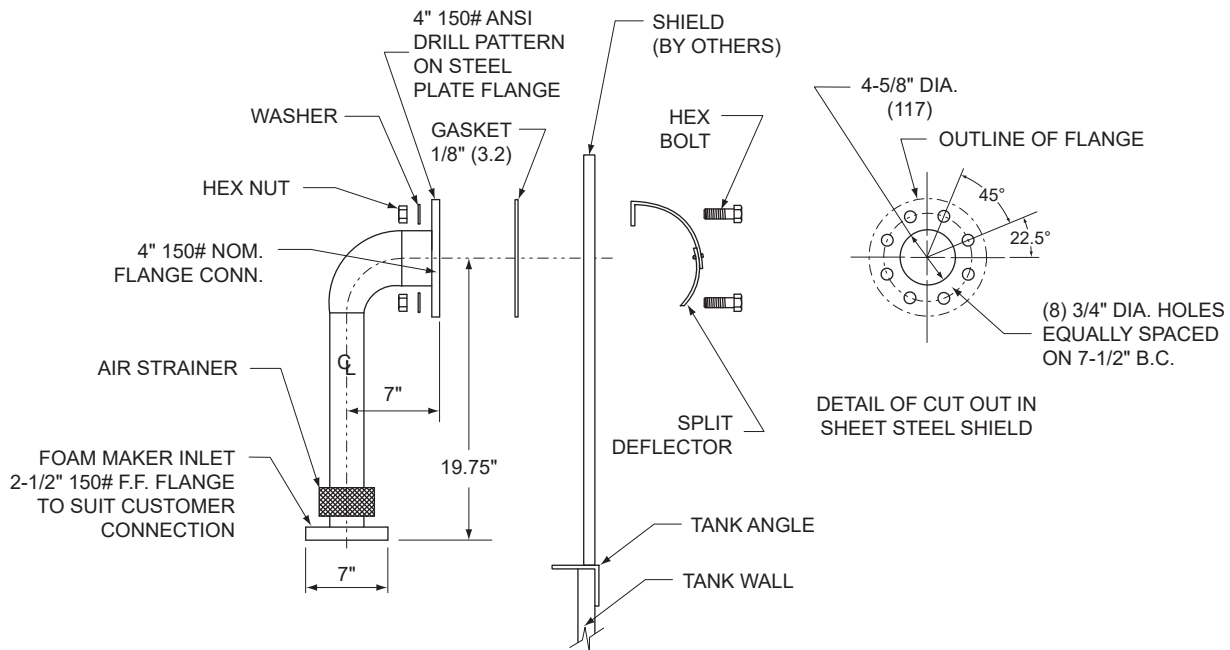
**K** is the orifice factor from the capacity chart.

**P** is the inlet pressure in pounds per square inch.

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## INSTALLATION DETAILS



### Notes:

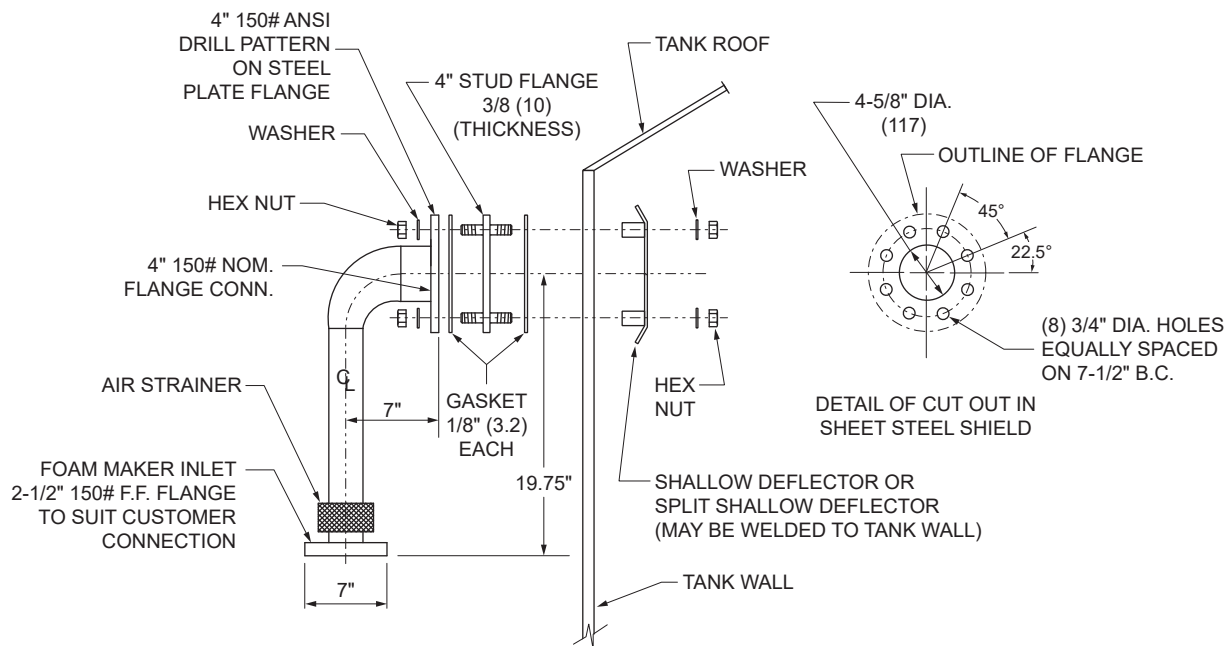
1. All dimensions are nominal.
2. Stud flange must be used if interior of tank is inaccessible.
3. It is recommended that riser piping upstream of each SPS-9 be fitted with a strainer having screen openings not greater than  $\frac{1}{4}$ " (6.4 mm) diameter.

### SPS-9 Foam Maker for Mounting on Customer Supplied Wind Shield on Open Top Floating Roof Tank

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### INSTALLATION DETAILS



#### Notes:

1. All dimensions are nominal.
2. Stud flange must be used if interior of tank is inaccessible.
3. It is recommended that riser piping upstream of each SPS-9 be fitted with a strainer having screen openings not greater than 1/4" (6.4 mm) diameter.

### SPS-9 Foam Maker for Mounting on Internal Floating Roof for Seal Protection Only

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ORDERING INFORMATION							
K Factor*	Red Foam Maker and Shield	Yellow Foam Maker and Shield	316L SS Foam Maker and Shield	Red 316L SS Foam Maker and Shield	Yellow 316L SS Foam Maker and Shield	Approximate Weight Lbs. (kg)	Approximate Shipping Ft <sup>3</sup> (m <sup>3</sup> )
2.0	1254-2050-1	1254-2053-1	1254-2056-1	1254-2059-1	1254-2059-22	34 (15)	1.22 (0.035)
2.5	1254-2050-2	1254-2053-2	1254-2056-2	1254-2059-2	1254-2059-23	34 (15)	1.22 (0.035)
3.0	1254-2050-3	1254-2053-3	1254-2056-3	1254-2059-3	1254-2059-24	34 (15)	1.22 (0.035)
3.5	1254-2050-4	1254-2053-4	1254-2056-4	1254-2059-4	1254-2059-25	34 (15)	1.22 (0.035)
4.0	1254-2050-5	1254-2053-5	1254-2056-5	1254-2059-5	1254-2059-26	34 (15)	1.22 (0.035)
4.5	1254-2050-6	1254-2053-6	1254-2056-6	1254-2059-6	1254-2059-27	34 (15)	1.22 (0.035)
5.0	1254-2050-7	1254-2053-7	1254-2056-7	1254-2059-7	1254-2059-28	34 (15)	1.22 (0.035)
5.5	1254-2050-8	1254-2053-8	1254-2056-8	1254-2059-8	1254-2059-29	34 (15)	1.22 (0.035)
6.0	1254-2050-9	1254-2053-9	1254-2056-9	1254-2059-9	1254-2059-30	34 (15)	1.22 (0.035)
6.5	1254-2051-0	1254-2054-0	1254-2057-0	1254-2059-10	1254-2059-31	34 (15)	1.22 (0.035)
7.0	1254-2051-1	1254-2054-1	1254-2057-1	1254-2059-11	1254-2059-32	34 (15)	1.22 (0.035)
7.5	1254-2051-2	1254-2054-2	1254-2057-2	1254-2059-12	1254-2059-33	34 (15)	1.22 (0.035)
8.0	1254-2051-3	1254-2054-3	1254-2057-3	1254-2059-13	1254-2059-34	34 (15)	1.22 (0.035)
8.5	1254-2051-4	1254-2054-4	1254-2057-4	1254-2059-14	1254-2059-35	34 (15)	1.22 (0.035)
9.0	1254-2051-5	1254-2054-5	1254-2057-5	1254-2059-15	1254-2059-36	34 (15)	1.22 (0.035)
9.5	1254-2051-6	1254-2054-6	1254-2057-6	1254-2059-16	1254-2059-37	34 (15)	1.22 (0.035)
10.0	1254-2051-7	1254-2054-7	1254-2057-7	1254-2059-17	1254-2059-38	34 (15)	1.22 (0.035)
10.5	1254-2051-8	1254-2054-8	1254-2057-8	1254-2059-18	1254-2059-39	34 (15)	1.22 (0.035)
11.0	1254-2051-9	1254-2054-9	1254-2057-9	1254-2059-19	1254-2059-40	34 (15)	1.22 (0.035)
11.5	1254-2052-0	1254-2055-0	1254-2058-0	1254-2059-20	1254-2059-41	34 (15)	1.22 (0.035)
12.0	1254-2052-1	1254-2055-1	1254-2058-1	1254-2059-21	1254-2059-42	34 (15)	1.22 (0.035)

\* To determine the correct "K" factor, please see Flow Capacity Chart on page 3.

**NOTE:** When ordering please specify the following information:

- Tank or hazard identification
- Tank or hazard size
- Product being stored
- Desired flow and inlet pressure
- Foam concentrate type and percentage of concentration

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## ORDERING INFORMATION

### DEFLECTOR FOR OPEN TOP FLOATING ROOF TANK

Description	Part Number	Qty.
Split Deflector	1253-1720-3	1

## ORDERING INFORMATION

### DEFLECTOR FOR COVERED FLOATING ROOF TANK

Shallow Deflector Kit, Part #1254-2052-4, consisting of:

Description	Part Number	Qty.
Shallow Deflector	1253-1762-3	1
Stud Flange	1253-1821-3	1
4"-150# Flange Gasket	1268-5734-1	2
5/8 Flat Washer (ZP)	1263-3510-0	8

## ORDERING INFORMATION

### DEFLECTOR FOR COVERED FLOATING ROOF TANK

Split Shallow Deflector Kit, Part # 1254-2052-5, consisting of:

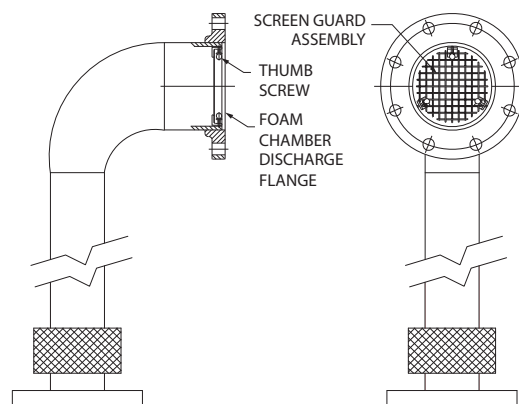
Description	Part Number	Qty.
Split Shallow Deflector	1253-1763-1	1
Stud Flange	1253-1821-3	1
4"-150# Flange Gasket	1268-5734-1	2
5/8 Flat Washer (ZP)	1263-3510-0	8

## ORDERING INFORMATION - SCREEN GUARD

Description	Part Number	Qty.
Screen Guard: SPS-9/RFC-60	1253-1920-3	1

### SPS-9 Foam Maker Accessory - Screen Guard

The Foam Maker Screen Guard is designed to prevent birds and animals from entering the foam maker through the discharge flange opening. **NOTE: The Screen Guard is used on floating roof applications. The Screen Guard is ordered separately from the foam maker.**



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## **National Foam**

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