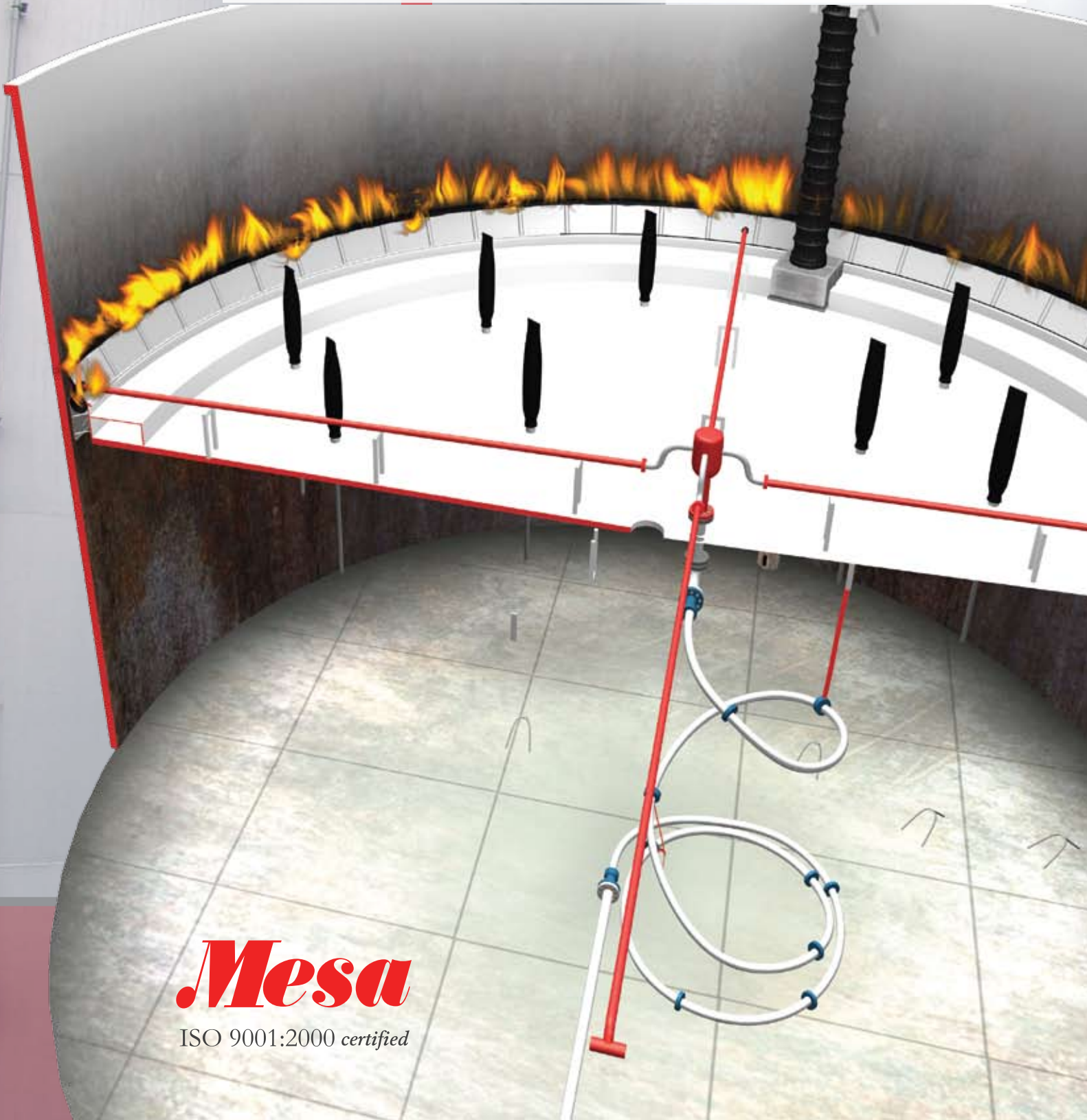


Foam Delivery System

Deliver Foam Directly to the Storage Tank Rim



Mesa

ISO 9001:2000 certified

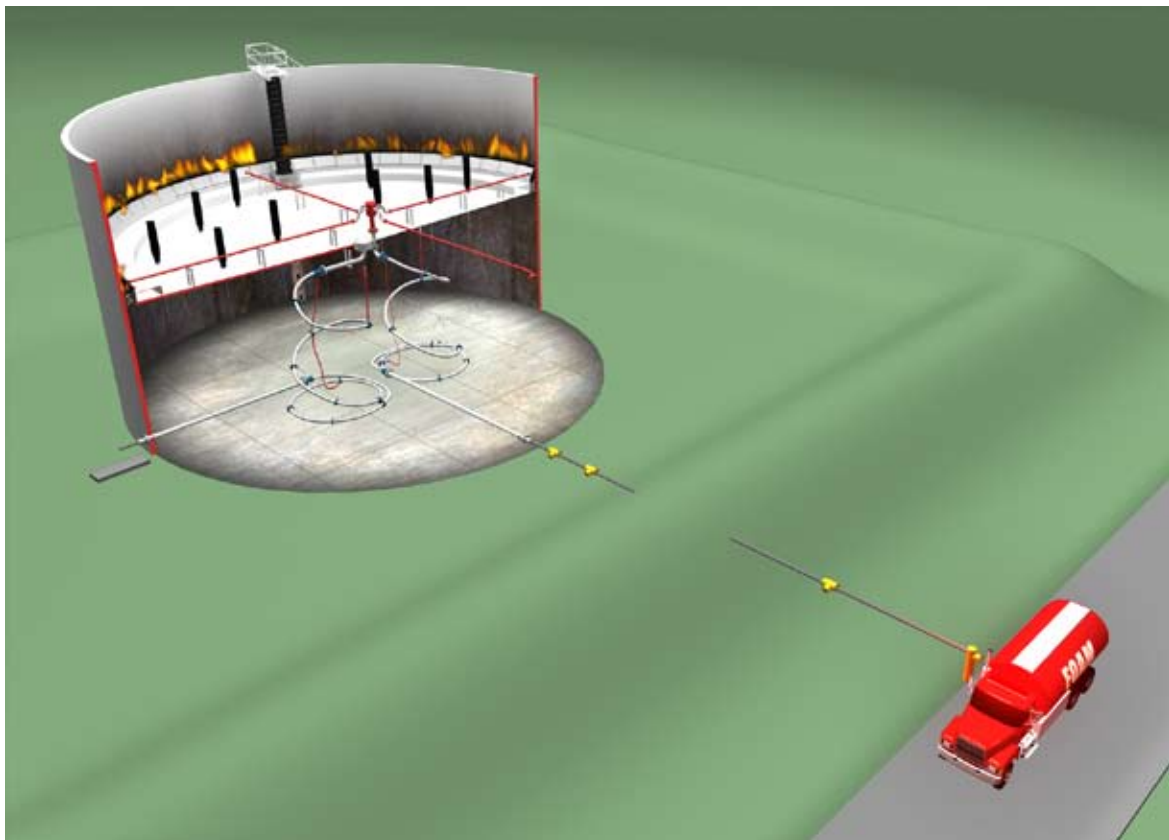
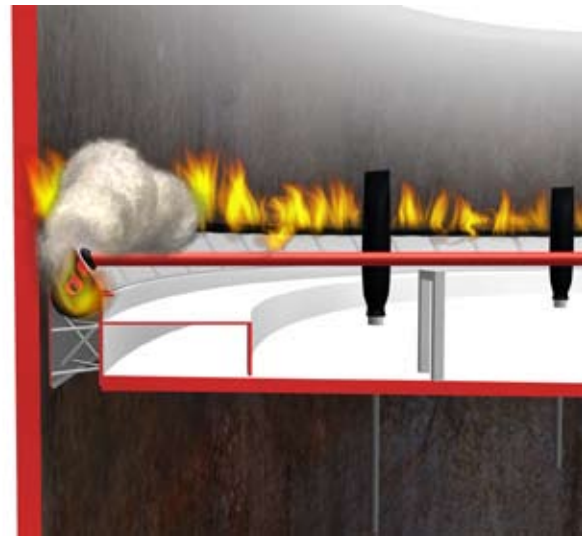
Foam Delivery System

Deliver Foam Directly to the Storage Tank Rim

The Mesa Foam Delivery System (FDS) is an efficient method to extinguish rim fires on floating roof storage tanks located in refineries, pipelines and marketing tank terminals. Mesa's FDS is designed to provide fast delivery of fire extinguishing foam through pipelines in the center of the tank and directly out to the tank rim areas.

System Design

- From the proportioning and pumping equipment positioned outside the dike wall, a high back pressure foam generator is used to direct fire extinguishing foam through rigid pipe to the base of the tank shell. The pipe passes through the tank shell and extends to a point near the center of the tank.
- A Mesa **Resist-All-Clad**[™] smooth bore flexible foam line is attached to the rigid pipe within the tank and is connected to a double flanged spool piece mounted to the roof.
- On top of the roof, a multiple port foam distribution manifold is mounted to the spool piece. This manifold is sized according to NFPA guidelines, which determine the required G.P.M. and number of discharge outlets for the tank's diameter and seal rim space area.
- From the distribution manifold outlets, flex-connectors and radial piping are used to transport the foam across the floating roof directly to the rim seal area regardless of the position of the roof.





Roof Seal Area Guidelines



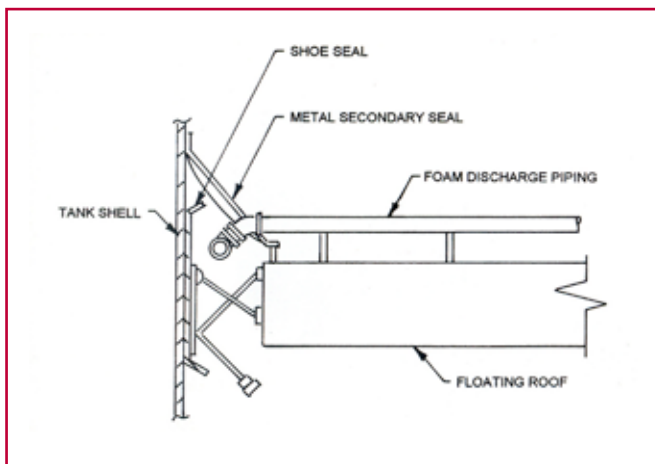
ISO 9001:2000 certified

The primary and secondary roof seal area is a critical point in the system design. Above seal applications require a foam dam and normally a longer discharge time.

If the tank is equipped with a secondary seal made from a non-combustible material, the foam can be discharged below the secondary seal and will not require a foam dam. This enables the system to discharge 100% of the foam over the rim seal area in the shortest time.

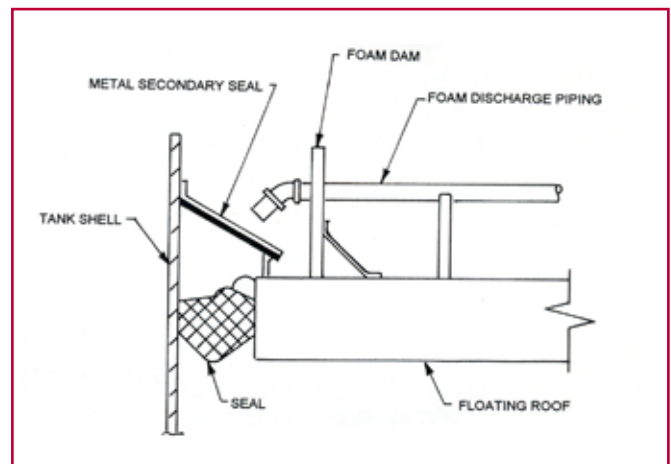
Below Seal Application

Foam discharge below mechanical shoe seal (no foam dam)



Above Seal Application

Foam discharge above metal secondary seal



Below Seal Application (No Foam Dam Required)

Seal Type	Minimum Application Rate		Minimum Discharge Time (min)	Maximum Spacing Between Discharge Outlets
	gpm/ft ²	L/min·m ²		
Mechanical Shoe Seal	0.5	20.4	10	130 ft (39m)
Tube seal with more than 6 in (152mm) between top of tube and top of pontoon	0.5	20.4	10	60 ft (18m)
Tube seal with less than 6 in (152mm) between top of tube and top of pontoon	0.5	20.4	10	60 ft (18m)
Tube seal with foam discharge below metal secondary seal*	0.5	20.4	10	60 ft (18m)

* Metal secondary seal is equivalent to a foam dam

Above Seal Application (Foam Dam is Required)

Seal Type	Minimum Application Rate		Minimum Discharge Time (min)	Maximum Spacing Between Discharge Outlets with	
	gpm/ft ²	L/min·m ²		12 in (305mm) Foam Dam ft (m)	24 in (610mm) Foam Dam ft (m)
Mechanical shoe seal	0.3	12.2	20	40 (12.2)	80 (24.4)
Tube seal with metal weather shield	0.3	12.2	20	40 (12.2)	80 (24.4)
Fully or partly combustible secondary seal	0.3	12.2	20	40 (12.2)	80 (24.4)
All metal secondary seal	0.3	12.2	20	40 (12.2)	80 (24.4)

Where the fixed foam discharge outlets are mounted above the top of the tank shell, a foam splashboard is necessary due to the effect of winds.

Northeast

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Southeast

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West

1726 South Magnolia Ave.
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Fax: 626.359.7985

Foam Delivery System™

- Ensures rapid response • Directly delivers foam to rim area • EFRT and IFRT compatible
- Operates with minimal maintenance • Reduces risk of serious property damage or injury
- Provides economical solution • Engineered to NFPA guidelines • Integrates with tank design



Foam Delivery System: View from floating roof showing radial piping and foam manifold



Foam manifold and stainless flex connectors



Below Seal Application showing seal boot

Division of  Mesa Industries Inc



MR-FDS-09

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