FOAM MAKER with RIM SEAL POURER

MODEL: NF-FM50 WITH NF-RSP80, NF-FMSS50 WITH NF-RSPS80, NF-FM65 WITH NF-RSP100, NF-FMSS65 WITH NF-RSPS100

APPLICATION

NAFFCO Rim Seal Foam Pourer consists mainly of Foam Maker, a windshield and deflector. The Rim Seal Foam Pourer is designed to deliver fully aspirated foam directly to the annular seal area of open top floating roof tank. The Rim Seal Foam Pourer is used for one of the most common applications of protecting tank seal in vertical liquid storage tank with internal floating roof with low expansion foam system.

The application of aspirated foam is on the basis of the risk comprising the area in the annular ring between the rim of the floating roof and the tank shell. The Foam system design guidelines generally used are in accordance with NFPA 11 standard. Rim Seal Foam Pourers are defined by NFPA 11 as Type II discharge outlets for delivering the low expansion aspirated foam to the seal.

The Rim Seal Foam Pourers are widely used with In-line Foam Inductor, Balance Pressure Foam Proportioning System, Bladder Tank system or Foam tenders.

SPECIFICATION

The Rim Seal Foam Pourer is an air aspirating foam generator connected to the foam maker to deliver the aspirated foam gently into the tank seal area. The rim seal foam pourer covers a wide range of foam solution rates from 41 GPM to 207 GPM at 50 to 100 psi inlet pressure. Each rim seal foam pourer is supplied with an orifice plate, designed for the required flow at inlet pressure. The orifice is field replaceable in the event of change in design parameters. The foam is produced by introducing air into the foam solution stream. The inlet of foam maker is designed to create venturi jet which draws air into the foam solution stream. The air is drawn into the foam solution through holes located on the foam maker covered with stainless steel screen to exclude nesting birds and insects.

SYSTEM DESIGN REQUIREMENT

For essential requirement of appropriately designed foam pouring system for storage tanks refer NFPA11/OISD/ Governmental codes or ordinances wherever applicable.

TESTING & MAINTENANCE

Qualified and trained person must commission the system. After few initial successful tests, an authorized person must be trained to perform inspection and testing of the system. It is recommended to carry out physical inspection of the system regularly. The system must be fully tested at least once in a year or in accordance to the standards of the organization having local jurisdiction. Do not turn off the system or any valve to make repair or test the system, without placing a roving Fire Patrol in the area covered by the system. The Patrol should continue until the system is put back in service. Also inform the local security guard and control alarm station, so as to avoid false alarm. Each system is to be flushed properly. To test the Rim Seal Foam Pourer without discharging the foam into the tank seal area, the Rim Seal Foam Pourer is to be rotated 180° away from the wind shield.

The air screen is to be inspected periodically for the obstruction of air inlet holes. If any obstruction is noticed, remove the same and flush, if necessary. The Rim Seal Foam Pourer outlet and pourer, if exposed to atmospheric condition, should be periodically inspected for nest and other obstructions. The obstruction, if noticed, must be removed and flushed to clear the discharge path.

TECHNICAL DATA

Foam Maker	• NF-FM50, NF-FM65-Carbon Steel • NF-FM50SS, NF-FM65SS-Stainless Steel
Inlet Size	50, 65 NB Inlet
Working Pressure	Min. 3.5 kg/cm^2 (50 psi) Max. 7 kg/cm^2 (100 psi)
Flange Connection	ANSI B16.5 Class 150#
Finish	Red RAL 3000
WEIGHT without Pourer *(Approx)*	50 NB-9.9 kg 65 NB-14.0 kg
Ordering Information	• Model & Inlet Size • Inlet Pressure • Foam Solution Flow requirement • Inlet and Outlet Flange • Foam concentrate used

Material Pourer	• NF-RSP80, NF-RSP100-Carbon Steel • NF-RSPS80, NF-RSPS100-Stainless Steel
Inlet Size	80 NB & 100 NB INLET
Flange Connection	ANSI B16.5 Class 150#
Finish	Red RAL 3000

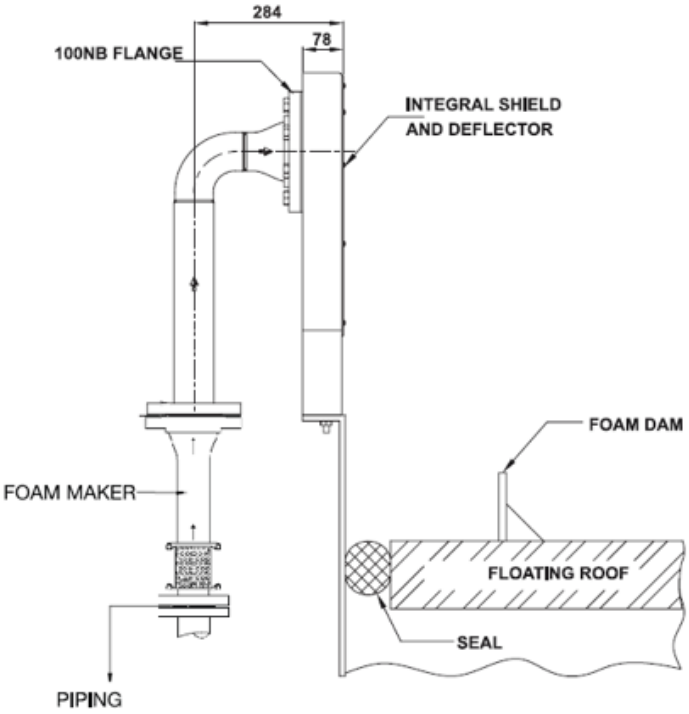
FOAM MAKER WITH RIM SEAL FOAM POURER-FLOW RATE IN GPM

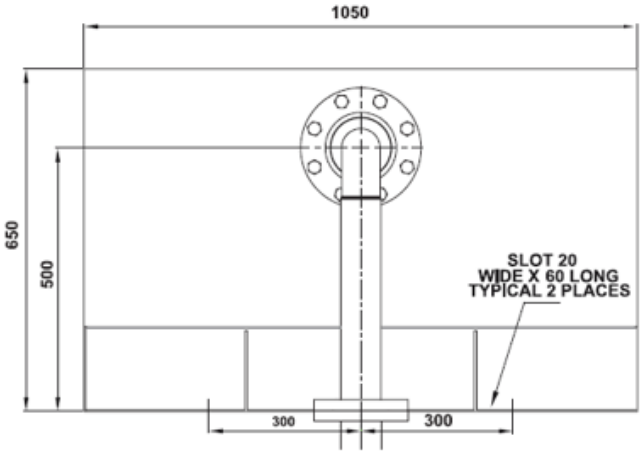
Foam Concentrate	Approval	Working Pressure	NF-RSP80/ NFRSPS80	NF-RSP100/ NFRSPS100
AFFF 3%	FM	73-100 psi	72-105	56-170
AFFF 6%	FM	73-100 psi	73-105	90-167
AR-AFFF 3/3	FM	50-100 psi	42-112	57-207
AR-AFFF 3/6 3%	FM	50-100 psi	41-112	58-204
AR-AFFF 3/6 6%	FM	50-100 psi	42-112	58-205

**NOTES:*

- *A provision is to be made for pressure gauge mounting at inlet, which may be plugged after successful commissioning of the system.*
- *This provision will help to analyse the system while commissioning.*
- *Listings, Approvals and/or Certifications for NAFFCO foam concentrate and/or equipment are valid only when used with other NAFFCO foam concentrates or equipment in a manner as outlined in the applicable Listing, Approval and/or Certification*

TYPICAL INSTALLATION FOAM MAKER WITH RIM SEAL POURER





DIMENSIONS of FOAM MAKER in mm

In line with NAFFCO policy for continuous product development, NAFFCO has the right to change specifications without prior notice.

RIM SEAL POURER with INTEGRAL FOAM MAKER

MODEL: NF-RSP65, NF-RSPSS65

APPLICATION

Rim Seal Foam Pourer consists mainly of Foam Maker, a windshield and an integral deflector. The Rim Seal Foam Pourer is designed to deliver fully aspirated foam directly to the annular seal area of open top floating roof tank. The Foam system design guidelines generally used are in accordance with NFPA11 standard.

The Rim Seal Foam Pourer are defined by NFPA 11 as Type II discharge outlets for delivering the low expansion aspirated foam to the seal & used with the In-line Foam Inductor, Balance Pressure Foam Proportioning system, Bladder Tank system and Foam tenders.

SPECIFICATION

Rim Seal Foam Pourer is an air aspirating foam generator connected to deliver the aspirated foam gently into the tank seal area. Foam maker covers wide range of foam solution rates from 13.21 to 148 GPM at 10 to 100 psi inlet pressure.

Each rim seal foam pourer is supplied with an orifice plate, designed for the required flow at inlet pressure. The orifice is field replaceable in the event of change in design parameters. The foam is produced by introducing air into the foam solution stream. The inlet of foam maker is designed to create venture jet which draws air into the foam solution stream.

The air is drawn into the foam solution through holes located on the foam maker covered with stainless steel screen to exclude nesting birds and insects.

SYSTEM DESIGN REQUIREMENT

For essential requirement of appropriately designed foam pouring system for storage tanks refer NFPA 11/ OISD/ Governmental codes or ordinances wherever applicable.

TESTING & MAINTENANCE

Qualified and trained person must commission the system. After few initial successful tests, an authorized person must be trained to perform inspection and testing of the system. It is recommended to carry out physical inspection of the system regularly. The system must be fully tested at least once in a year or in accordance to standards of the organization having local jurisdiction. Do not turn on the system or any valve to make repair or test the system, without placing a roving Fire Patrol in the area covered by the system. The Patrol should continue until the system is put back in service. Also inform the local security guard and control alarm station, so as to avoid false alarm. Each system is to be flushed properly.

To test the Rim Seal Foam Pourer without discharging the foam into the tank seal area, the foam maker is to be rotated 180° away from the wind shield.

The air screen is to be inspected periodically for obstruction of air inlet holes. If any obstruction is noticed, remove the same and flush if necessary. The foam maker outlet and pourer, if exposed to atmospheric condition, should be periodically inspected for nest and other obstructions. Any obstruction if noticed must be removed and flushed to clear the discharge path.

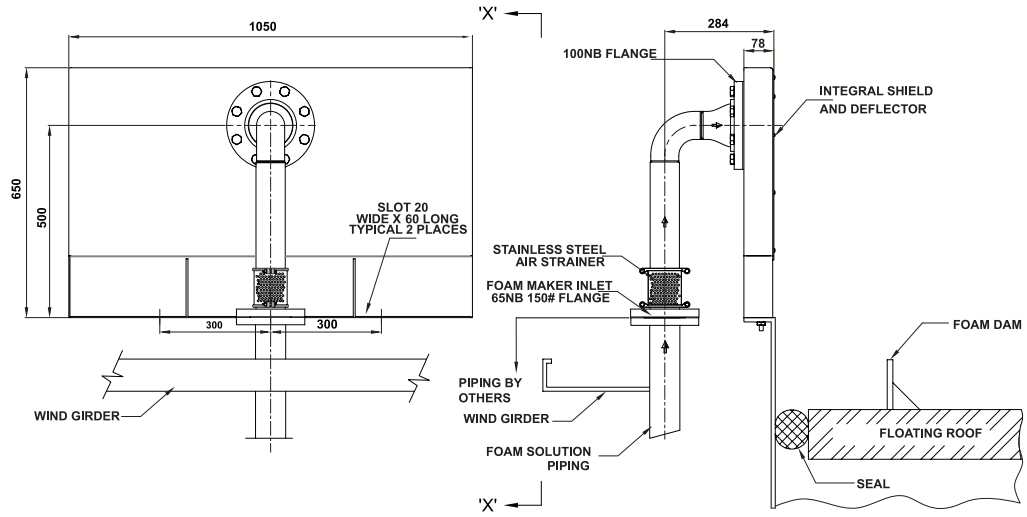
TECHNICAL DATA

Material	NF-RSP65-Carbon Steel NF-RSPS65-Stainless Steel
Inlet Size	65 NB INLET
Working Pressure	Min. 2.8kg/cm^2 (40 psi) Max. 7kg/cm^2 (100 psi)
Flange Connection	ANSI B16.5 Class 150#
Finish	Red RAL 3000
Ordering Information	• Model & Inlet Size • Inlet Pressure • Foam Solution Flow requirement • Foam concentrate used

DETAILS FOR 65NB FOAM MAKER WITH RIM SEAL POURER

FOAM CONCENTRATE TYPE	APPROVAL	WORKING PRESSURE	NF-RSP65/NF-RSPS65
AFFF 3%	UL	40-100 psi	13.21-145.30 GPM
AR-AFFF 3%	-	50-100 psi	14-148 GPM

TYPICAL INSTALLATION OF RIM SEAL POURER WITH INTEGRAL FOAM MAKER



VIEW X - X

All Dimensions are in MM (Approx.)

**NOTES:*

- *Strainer assembly consists of SS perforated sheet, SS strainer holder & Galvanized Nut/Bolt*
- *A provision is to be made for pressure gauge mounting at inlet of RSP, which may be plugged after successful commissioning of the system. This provision will help to analyze the system while commissioning.*
- *UL listing of equipment are valid only when used with NAFFCO foam concentrate in a manner as listed and as approval data.*
- *Refer to the individual foam UL listing for operating limitation with each foam concentrate and rim seal pourer*

In line with NAFFCO policy for continuous product development, NAFFCO has the right to change specifications without prior notice.

FOAM MAKER with GOOSENECK POURER

MODEL: NF-FM50 WITH FP55, NF-FMSS50 WITH FP-S-55, NF-FM65 WITH FP55, NF-FMSS65 WITH FP-S-55

APPLICATION

Foam Maker is used for one of the most common applications of protecting tank seal in vertical liquid storage tank with internal floating roof with low expansion foam system. The application of aspirated foam is on the basis of the risk comprising the area in the annular ring between the rim of the floating roof and the tank shell. The Foam system design guidelines generally used are in accordance with NFPA11 standard. The Foam Makers are defined by NFPA 11 as Type II discharge outlets for delivering the low expansion aspirated foam to the seal. The Foam Makers are widely used with the In-line Foam Inductor, Balance Pressure Foam Proportioning system, Bladder Tank system and Foam tenders.

SPECIFICATION

Foam Maker is an air aspirating foam generator connected to the foam pourer to deliver the aspirated foam gently into the tank seal area. Foam maker covers wide range of foam solution rates from 19.8 to 205 GPM at 40 to 100 psi inlet pressure. The orifice is field replaceable in the event of change in design parameters. The foam is produced by introducing air into the foam solution stream. The inlet of foam maker is designed to create venture jet which draws air into the foam solution stream. The air is drawn into the foam solution through holes located on the foam maker covered with stainless steel screen to exclude nesting birds and insects. The aerated foam is directed into the pourer for the gentle application of the expanded foam. The pourers are available in different models.

TESTING & MAINTENANCE

Qualified and trained person must commission the system. After few initial successful tests, an authorized person must be trained to perform inspection and testing of the system. It is recommended to carry out physical inspection of the system regularly. The system must be fully tested at least once in a year or in accordance to standards of the organization having local jurisdiction. Do not turn off the system or any valve to make repair or test the system, without placing a roving Fire Patrol in the area covered by the system. The Patrol should continue until the system is put back in service. Also inform the local security guard and control alarm station, so as to avoid false alarm. Each system is to be flushed properly. To test the Foam Maker without discharging the foam into the tank seal area, the foam maker is to be rotated 180° away from the wind shield. The air screen is to be inspected periodically for obstruction of air inlet holes. If any obstruction is noticed, remove the same and flush if necessary. The foam maker outlet and pourer, if exposed to atmospheric condition, should be periodically inspected for nest and other obstructions. Any obstruction if noticed must be removed and flushed to clear the discharge path.

TECHNICAL DATA

Material	• NF-FM50, FP-55, NF-FM65– Carbon Steel • NF-FMSS50, FP-S-55, NF-FMSS65- Stainless Steel
Inlet Size	50 NB & 65 NB
Working Pressure	• Min. 2.8 kg/cm^2 (40 psi) • Max. 7 kg/cm^2 (100 psi)
Flange Connection	ANSI B16.5 Class 150#
Finish	Red RAL 3000
WEIGHT (without Pourer)	• 50 NB-9.9 kg • 65 NB-14.0 kg
Ordering Information	• Model & Inlet Size • Inlet Pressure • Foam Solution Flow requirement • Inlet and Outlet Flange • Foam concentrate used

**NOTES:*

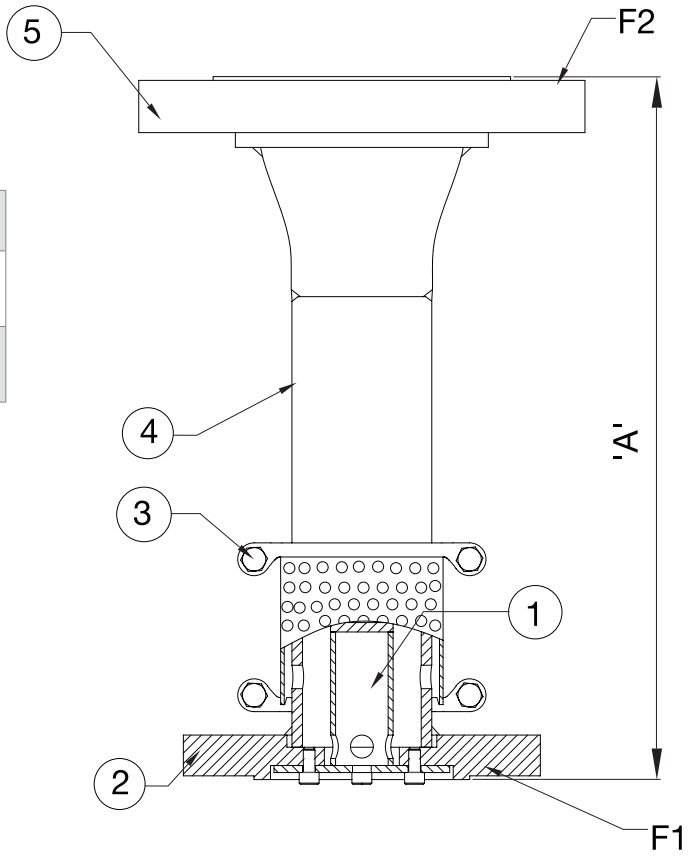
- *Listings, Approvals and/or Certifications for NAFFCO foam concentrate and/or equipment are valid only when used with other NAFFCO foam concentrates or equipment in a manner as outlined in the applicable Listing, Approval and/or Certification.*

DIMENSION OF FOAM MAKER IN MM

Model	Foam Maker Size	Inlet(F1)	Outlet(F2)	A
NF-FM50/ NF-FMSS50	50NB	50NB	80NB	300
NF-FM65/ NF-FMSS65	65NB	65NB	100NB	400

**NOTES:*

- *Strainer assembly consists of SS perforated sheet, SS strainer holder and galvanized nut bolt.*



PART LIST

Item No.	Description	Material Specification	
		NF-FM	NF-FMSS
1	Orifice Assembly	Stainless Steel	Stainless Steel
2	Inlet Flange	Carbon Steel	Stainless Steel
3	Strainer Assembly	Stainless Steel	Stainless Steel
4	Foam Making Chamber	Carbon Steel	Stainless Steel Pipe
5	Outlet Flange	Carbon Steel	Stainless Steel

ASTM GRADES OF FOAM MAKER IN CARBON STEEL-FMA MATERIAL OF CONSTRUCTION

Sr. No	Name Of The Equipment	MOC	ASTM Grades & Equivalent Grades
1	Orifice Plate Assembly	SS 304	ASTM A240 TYPE 304
2	Inlet Flange	CS	ASTM A105,ANSI B16.5 150#
3	Strainer	SS 304	ASTM A240 TYPE 304
4	Foam Making Chamber	CS	ASTM A53
5	Reducer	CS	ASTM A234 WPB
6	Outlet Flange	CS	ASTM A105,ANSI B16.5 150#

FOAM MAKER WITH GOOSENECK FLOW RATE IN GPM

Foam Concentrate	Approval	Working Pressure	NF-FM50 with FP-55/ NF-FMSS50 with FP-S-55	NF-FM65 with FP-55/ NF-FMSS65 with FP-S-55
AFFF3%	UL	40-100 psi	19.81-88.5	39.62-145.30
AFFF3%	FM	50-100 psi	35-106	51-167
AFFF6%	FM	50-100 psi	36-106	57-168
AR-AFFF3/3 3%	FM	50-100 psi	41-112	58-205
AR-AFFF3/6 3%	FM	50-100 psi	41-119	56-203
AR-AFFF3/6 6%	FM	50-100 psi	41-118	57-204

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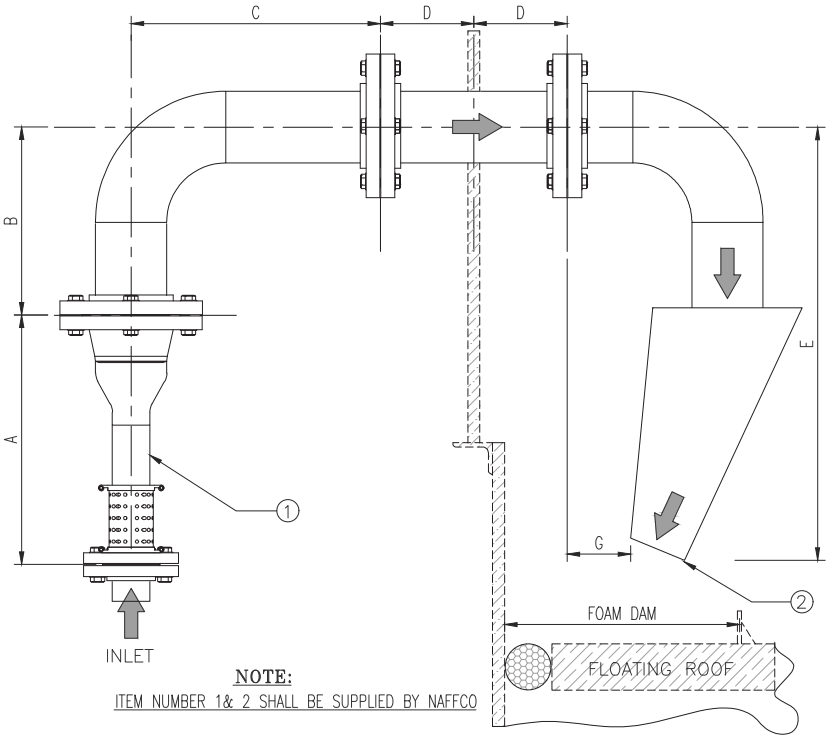
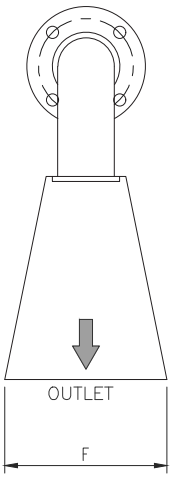
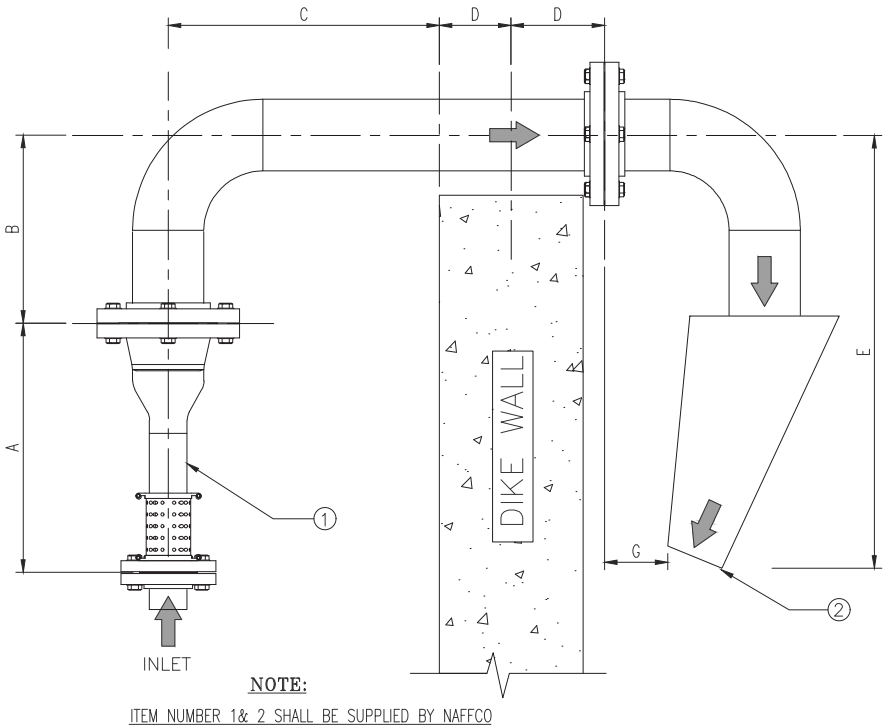
TYPICAL INSTALLATION OF FOAM MAKER WITH POURER FOR FLOATING ROOF PROTECTION



NOTE:
ITEM NUMBER 1& 2 SHALL BE SUPPLIED BY NAFFCO



TYPICAL INSTALLATION OF FOAM MAKER WITH POURER FOR DIKE PROTECTION



NOTE:
ITEM NUMBER 1& 2 SHALL BE SUPPLIED BY NAFFCO

PARTS LIST

ITEM.NO	ITEM	MATERIAL
01	FOAM MAKER	CARBON STEEL,STAINLESS STEEL
02	FOAM POURER	C.S. ASTM A36,STAINLESS STEEL

DIMENSIONAL DATA

FOAM MAKER			FOAM POURER		APPROXIMATE DIMENSIONS (IN MM)						
INLET/FOAM MAKER	INLET	OUTLET	MODEL	INLET	A	B	C	D	E	F	G
(NF-FM50/NF-FMSS50)	50 NB	80 NB	FP-55/FP-S-55	80 NB	300	300	400	150	500	260	75
(NF-FM65/NF-FMSS65)	65 NB	100 NB	FP-55/FP-S-55	100 NB	400	300	400	150	615	310	105

**NOTE:* *Above dimensions are general guidelines only. The system designer can adopt the dimensions as per the governing rules & ordinance having local jurisdiction. Foam pourer model NF-FP 55 is standard supply in Carbon steel material and optional in stainless steel. Foam maker can be install horizontal position also.*