

# MONITOR

## MODEL: NFM-400BZ



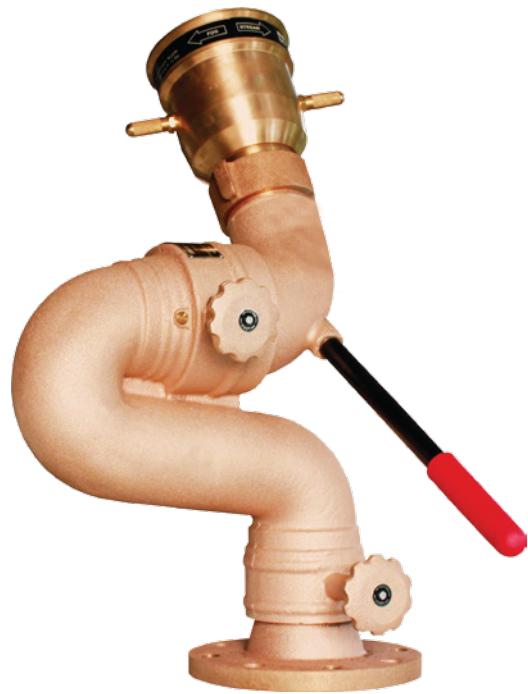
### TECHNICAL DATA

Monitor	NFM-400BZ
Nozzle	NF-FFN500SI NF-FFN750SI NF-FFN500MI NF-FFN750MI NF-FFN1000MI
Nominal Size	3" (80 mm)
Max. Service Pressure	200 psi (14 bar), UL Listed for 175 psi
Maximum Flow	1000 GPM (3800 LPM) Refer Table I for flow
Swivel Joint	Bronze to ASTM B 62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	3" (80NB4) or 4" (100NB) Flange to ANSI B16.5 #150, F.F.
Outlet Connection	3" BSP (M) or 3" NH
Monitor Elevation	90° above horizontal & 65° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Manual
Approval	UL Listed
Finish	Red RAL 3001
Weight (Approx)	33 kg (without nozzle)
Ordering	Specify Monitor & Nozzle Model

### DESCRIPTION

The Monitor Model NFM-400BZ is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial application. The Monitor possesses several design features that provides ease of operation, minimum maintenance and resistance to corrosive environments. The monitor has cast bronze 3" (80 mm) water way. The vertical and horizontal rotation is through corrosion resistant bronze swiveling joint with double row of stainless steel ball bearing. Both vertical and horizontal movements are controlled by handle with twist lock.

The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from affecting the horizontal and vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is from 90° above horizontal to 65° below horizontal. When used on oscillation unit the angle of elevation will be -40° to +80° manual adjustable. The water vanes in discharge tube reduces turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, friction loss



through monitor must be considered while selecting the nozzle and flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data, refer monitor nozzle data sheet.

*\*NOTE: Any intermediate range (UP+DN)° between UP ≤ 90° and DN ≤ 60° can be provided as per requirement of the customer*

### INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor. After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor. The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use. Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage. Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation.

Each monitor must be operated with full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

#### **CAUTION**

A trained personnel for fire fighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury. The nozzle must be fixed to the monitor carefully. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation. When installing monitor it is critical that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage. Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

Nozzle Model	Type	Flow at 100 psi in GPM	Straight Stream Range in Meters
NF-FFN500MI	D	500	60
NF-FFN750MI	D	750	61.5
NF-FFN1000MI	D	1000	65
NF-FFN500SI	C	500	46
NF-FFN750SI	C	750	54

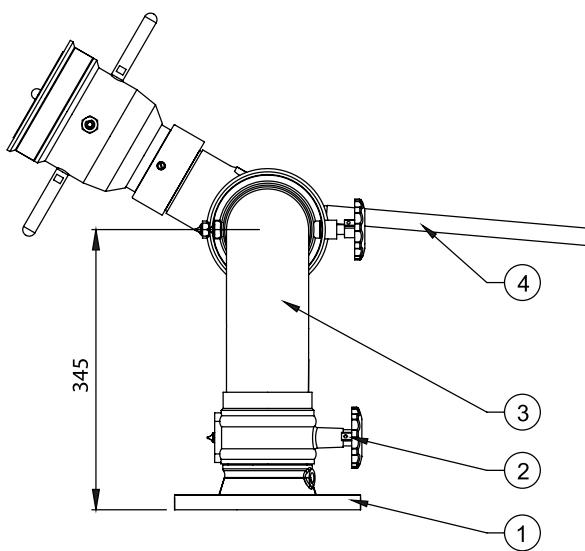
TYPE-D is Non self Inducing, non self Aspirating nozzle used for premix solution.

TYPE-C is Self Inducing, non self Aspirating nozzle used with listed foam, AFFF3%

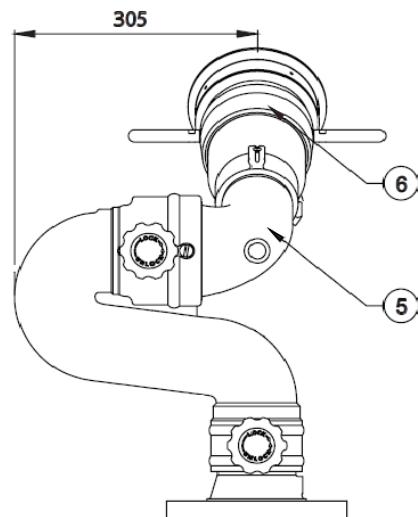
#### \*NOTES:

- Refer UL Listing for foam concentrate.
- Performance data are for foam reach are based at =30 nozzle elevation in still air condition.
- For details refer the nozzle catalogue.

SN No.	Description	Material Specification
1	Base Flange	Bronze ASTM B62
2	Lock	Stainless Steel CF8
3	Elbow	Bronze ASTM B62
4	Handle	Carbon Steel
5	Outlet Elbow	Bronze ASTM B62
6	Nozzle	Bronze



ELEVATION



SIDE VIEW

# LEVER OPERATED FOAM MONITOR

MONITOR MODELS: NFM 460-65, NFM 460-80, NFM 460-100,  
NFM 460-65B, NFM 460-80B, NFM 460-100B

NOZZLE MODELS: NF-500FN, NF-500FNA



Mostly installed on fire trucks or fire hydrants. Lever on the body enables quick control and locking knob surely fixes for desirable position of the monitor. High strength and high corrosion resisting Al-Bronze material special alloy is applied suitable for use at high pressurized, harsh conditioned and salty areas. Optional to use Aluminum (NF-500FNA) or Aluminum-Bronze alloy(NF-500FN) material foam self-inducting nozzles. Built-In Valve type monitor which is combination of monitor and shut-off valve also UL listed.

Size Inlet	ANSI#150 2-1/2", 3", 4" Flange
Size Outlet	2-1/2" NH Male
Material	Aluminum-Bronze special alloy (ASTM B148 c95500)
Working Pressure	2.0 MPa
Operating Angle	Up +85° / Down-45°



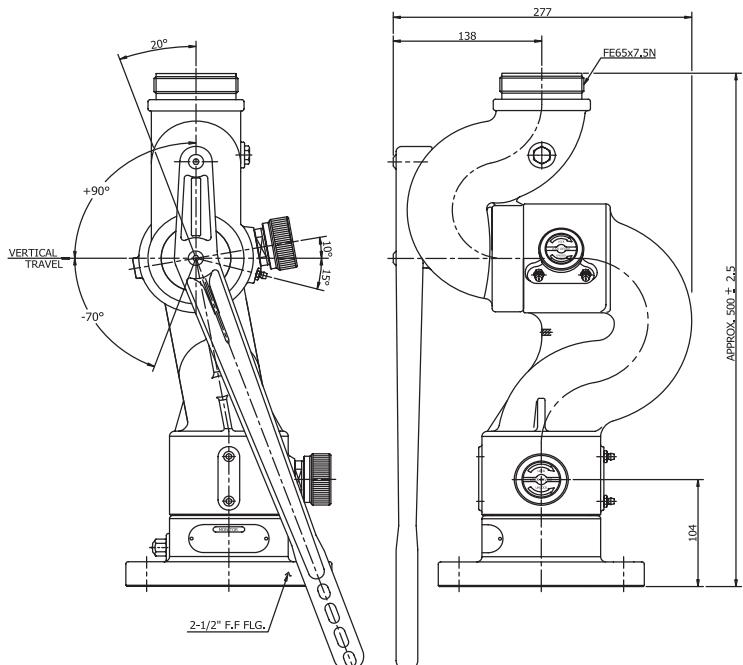
NFM460B (Built-In Valve)



NF-500 FNA

NFM460

## DIMENSION



## APPLICATION NOZZLE

Size	2-1/2" NH Female
Flow Rate	500 GPM(0.7 MPa) / 350 GPM
Shooting Range	50m (0.7 MPa)
Foam Ratio	3%
Material	NF-500FNA-Aluminium (ASTM B210) black. NF-500FN-Aluminium-bronze alloy (ASTM B148 c95500)
Weight	3.9 kg Aluminium & 9.9 kg Bronze
Option	Pick-up Hose

\*NOTE: only 500 GPM UL listed

*(THIS PAGE IS INTENTIONALLY LEFT BLANK)*

# GEAR OPERATED FOAM MONITOR

**MONITOR MODELS: NFM 520-65, NFM 520-80, NFM 520-100, NFM 520-65B,  
NFM 520-80B, NFM 520-100B**

## NOZZLE MODELS: NF-500FN, NF-500FNA

Usually installed on fire trucks or large capacity oil, gas plant, storage tank where need longer distance fire operation. The gear inside works as a stopper so that extra fixing device is not necessary. High strength and high corrosion resisting Al-Bronze material is applied suitable for use at high pressured, harsh conditioned and salty areas. Optional to use aluminum or Al-Bronze material foam self inducting nozzles. Built-in valve type monitor which is combination of monitor and shut-off valve is also UL listed.

Size Inlet	ANSI#150 2-1/2", 3", 4" Flange
Size Outlet	2-1/2" NH Male
Material	Aluminum-Bronze special alloy (ASTM B148 c95500)
Working Pressure	2.0 MPa
Operating Angle	Up +85° / Down-45°



The image displays two fire protection components. On the left, the NFM520 is a red, multi-directional piping assembly with two black valves and a black cap at the top. On the right, the NF-500FN is a smaller, gold-colored component with a black handle and a blue label.

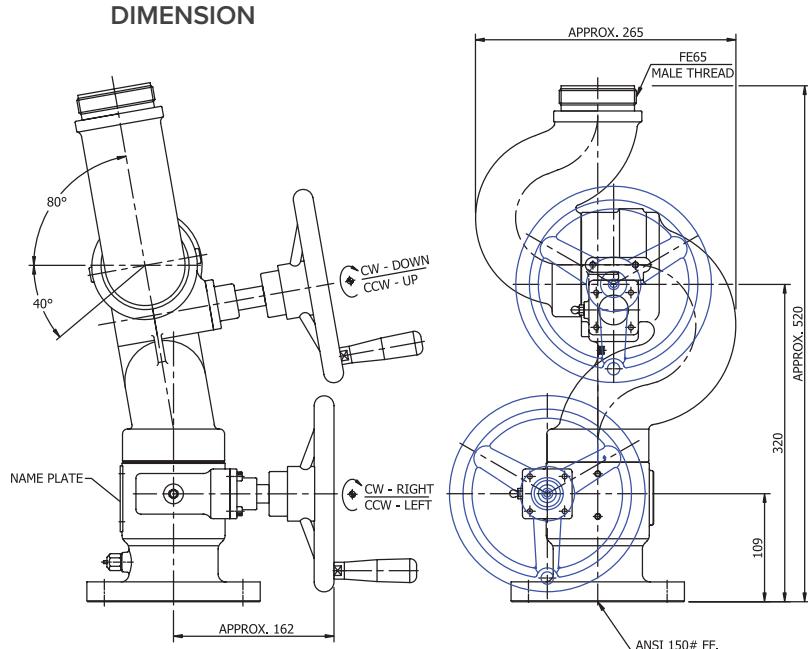
NF-500FN

## NFM520B (Built-In Valve)

## APPLICATION NOZZLE

<b>Size</b>	2-1/2" NH Female
<b>Flow Rate</b>	500 GPM(0.7 MPa)/350 GPM
<b>Shooting Range</b>	50m (0.7 MPa)
<b>Foam Ratio</b>	3%
<b>Material</b>	NF-500FNA-Aluminium (ASTM B210) black. NF-500FN-Aluminium-bronze alloy (ASTM B140 c95500)
<b>Weight</b>	9.9 kg (Bronze), 3.9 kg (Aluminum)
<b>Option</b>	Pick-up Hose

**\*NOTE:** only 500 GPM UI listed



*(THIS PAGE IS INTENTIONALLY LEFT BLANK)*

# GEAR OPERATED FOAM MONITOR

**MONITOR MODELS: NFM 540-100, NFM 540-150**

**NOZZLE MODELS: NF-500FN, NF-500FNA**



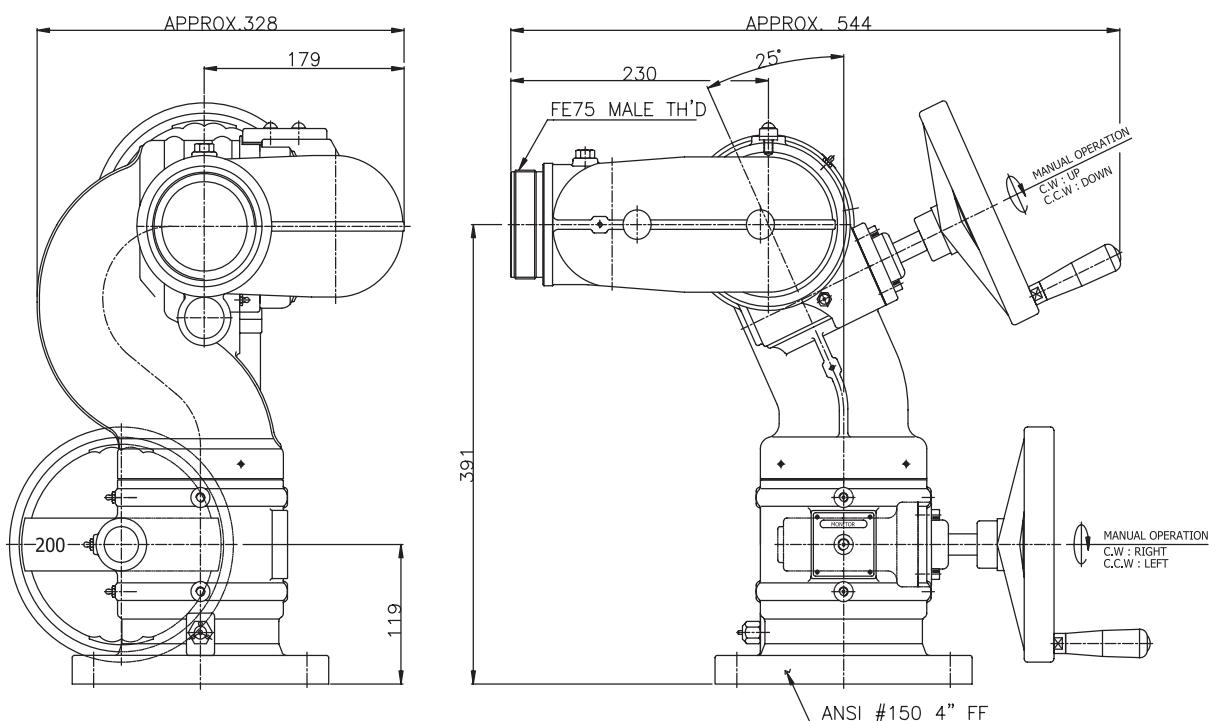
As large flow capacity monitor, it is usually installed for big oil and chemical plant. It assures smooth vertical and horizontal movement up to 2000 GPM flow. High strength and high corrosion resisting Al-Bronze material is applied suitable for use at high pressurized, harsh conditioned and salty areas. Optional to use Aluminum or Al-Bronze material foam nozzles.

Size Inlet	ANSI#150 4", 6" Flange
Size Outlet	2-1/2" NH Male
Material	Aluminum-Bronze special alloy (ASTM B148 c95500)
Working Pressure	2.0 MPa
Operating Angle	Up +85° / Down-45°

## APPLICATION NOZZLE

Size	2-1/2" NH Female
Flow Rate	500 GPM(0.7 MPa)/350 GPM
Shooting Range	50m (0.7 MPa)
Foam Ratio	3%
Material	NF-500FNA-Aluminium (ASTM B210) black. NF-500FN-Aluminium-bronze alloy (ASTM B140 c95500)
Weight	9.9 kg (Bronze), 3.9 kg (Aluminum)
Option	Pick-up Hose

\*NOTE: only 500 GPM UL listed



*(THIS PAGE IS INTENTIONALLY LEFT BLANK)*

# FOAM MONITOR

MODEL: NFM-500



## DESCRIPTION

Corrosion resistant stainless steel monitor Model NFM-500 is durable manual controlled low profile monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial application. The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with fix flow or variable flow nozzle.

The monitor has welded stainless steel 4" (100 mm) waterway. The vertical and horizontal rotation is through stainless steel swivel joints with double row of stainless steel ball bearing. Both vertical and horizontal movement is controlled with handwheel driven enclosed worm gear.

The monitor has large flow capacity and can be manually operated by a single fire fighter. The design ensures to prevent jet reaction forces from effecting the horizontal and vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable from 90° above horizontal to 65° below horizontal. The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, all the flow specified is at monitor base inlet pressure.

## NOZZLE OPERATION INSTRUCTIONS

### FLOW CHANGE

In case of variable flow Nozzle model NF-VFN1000, to change the flow, press the knob and rotate to match the arrow of knob and marking line on Nozzle. After flow setting set the concentrate induction by rotating the knob of induction valve.

### CHANGE SPRAY TO JET

To change spray angle, rotate the pattern sleeve clockwise for straight stream or anticlockwise to spray / fog pattern.

### NOZZLE DUST PROTECTION CAP

Nozzle Dust Protection Cap is optional supply. This cap protects nozzles operating parts from dust and bird nesting.

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of equipment. Before assembly of the monitor to supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor. The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement



or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.

Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation.

Each monitor must be operated with full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition. Periodical flushing of the Nozzle with clean water and movement of moving parts, will allow Nozzle to operate as designed.

### CAUTION

A trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully, the flange bolts must be tightened uniformly.

The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is critical that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve.

Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

If dust protection cap for nozzle is used, then make sure that cap is removed before starting of monitor

## TECHNICAL DATA

Nominal Size	4" (100 mm)
Max. Service Pressure	175 psi (12 bar)
Flow Rate and Nozzle Model	500 GPM-NF-FFN500 750 GPM-NF-FFN750 1000 GPM-NF-FFN1000
Flow Rate and Nozzle Model	500-750 GPM-NF-VFN500-750 750-1000 GPM-NF-VFN750-1000 500-1000 GPM-NF-VFN500-1000 500-750-1000 GPM-NF-VFN500-750-1000
Induction Rate	3% (3 to 3.9%)
Factory Hydro Test Pressure	350 psi (25 bar)
Material	Stainless Steel
Optional Supply	Pressure Gauge
Nozzle Thrust Reaction In kg.	Flow in LPM x √Pressure in kg/cm <sup>2</sup> x 0.0228
Inlet Connection	4" or 6" (100 or 150 NB) Flange to ANSI B16.5 #150, R.F.
End Connection	4" BSP Monitor & Nozzle
Pickup Tube	Clear PVC, Spiral wound with SS dip tube
Monitor Elevation	90° above horizontal & 65° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Double hand wheel driven enclosed worm gear
Finish	Red RAL 3001 Standard supply. Optional as per customer requirement
Ordering Information	Specify: • Monitor model & inlet size • Nozzle model & flow • Material specification

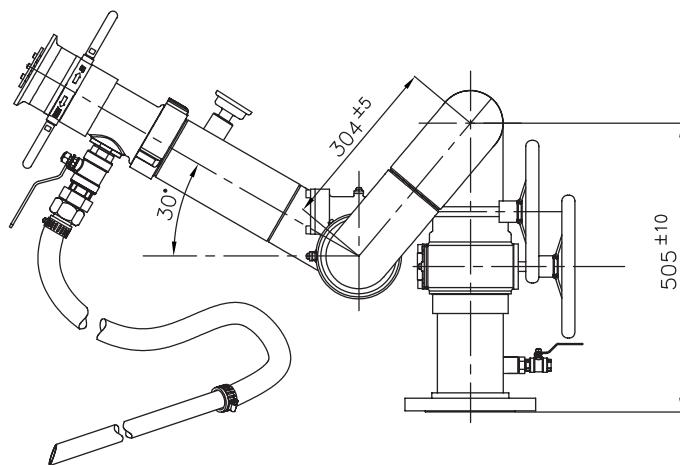
## FOAM REACH DATA

Set Flow Rate, GPM	Concentrate induction Rate in %	Monitor Base Pressure in kg/cm <sup>2</sup>	Reach in Still Air (in meters)	
			Water	Foam
500	3	7	50	45
750	3	7	60	55
1000	3	7	65	60

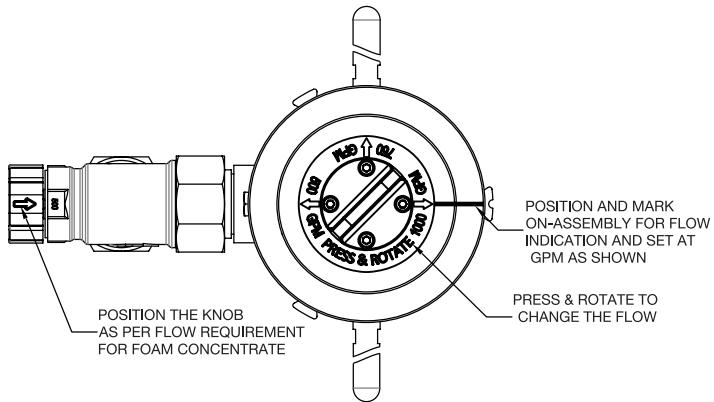
### \*NOTES:

- Monitor inlet flange standard size is 100NB (4") to ANSI B16.5, 150#, Other optional sizes 150NB (6")
- Flow is within ±5%
- Standard Supply-SS304/ASTM A-351-CF8
- Optional Supply-A) SS316/ASTM A-351-CF8M  
B) SS316L/ASTM A-351-CF8ML
- Foam reach data is in still air at 30/35° Nozzle elevation
- Nozzle-NF-FFN500, NF-FFN750, NF-FFN1000, NF-VFN500-750, NF-VFN750-1000, NF-VFN500-1000 & NF-VFN500-750-1000

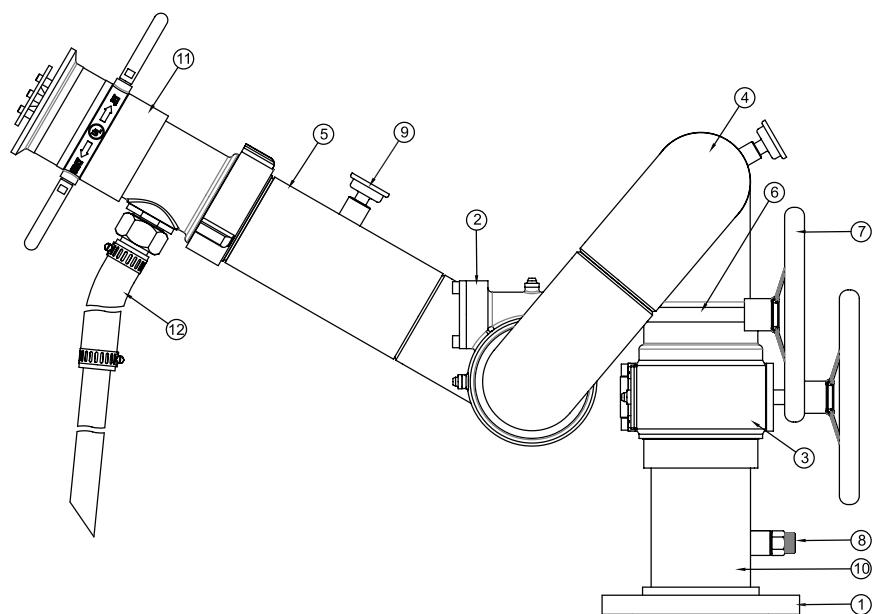
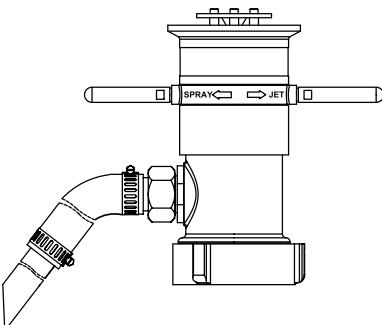
## DIMENSIONS



### VARIABLE FLOW FOAM NOZZLE



### FIX FLOW FOAM NOZZLE



No.	Description	Material Specification
1	Base Flange	Stainless Steel
2	Worm Wheel	Stainless Steel
3	Swine Joint V & H Rotation	Stainless Steel
4	Elbow	Stainless Steel SCH40
5	Discharge Elbow	Stainless Steel SCH40
6	Worm Shaft	Stainless Steel

No.	Description	Material Specification
7	Hand Wheel	Stainless Steel
8	Drain Valve	Stainless Steel
9	Pressure Gauge	Glycerin Filled 0 to 16 kg/cm <sup>2</sup> (Optional)
10	Inlet Pipe	Stainless Steel
11	Nozzle	Stainless Steel
12	Pickup Tube	Clear PVC

*(THIS PAGE IS INTENTIONALLY LEFT BLANK)*

# FOAM MONITOR

MODEL: NFM-1000 WITH NOZZLE MODEL NF-VFN-JRCP-500-750-1000



## DESCRIPTION

Corrosion resistant stainless steel monitor Model NFM-1000 is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other industrial application. The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with fix flow or variable flow nozzle.

The monitor has welded stainless steel 4" (100 mm) waterway. The vertical and horizontal rotation is through stainless steel swivel joints with double row of stainless steel ball bearing. Both vertical and horizontal movement is controlled with handwheel driven enclosed worm gear.

The monitor has large flow capacity and can be manually operated by a single fire fighter. The design ensures to prevent jet reaction forces from effecting the horizontal and vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable from 90° above horizontal to 45° below horizontal. The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, all the flow specified is at monitor base inlet pressure.

## NOZZLE OPERATION INSTRUCTIONS

### FLOW CHANGE

Variable flow Nozzle model NF-VFN-JRCP-500-750-1000 to change the flow, press the knob and rotate to match the arrow of knob and marking line on Nozzle. After flow setting set the concentrate induction by rotating the knob of induction valve. JRCP with metering valve shall be provided

### CHANGE SPRAY TO JET

To change spray angle, rotate the pattern sleeve clockwise for straight stream or anticlockwise to spray/fog pattern.

### INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of equipment. Before assembly of the monitor to supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and



also as per the local authority having jurisdiction. It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.

Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation.

Each monitor must be operated with full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

Periodical flushing of the Nozzle with clean water and movement of moving parts, will allow Nozzle to operate as designed.

### CAUTION

A trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully, the flange bolts must be tightened uniformly.

The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is critical that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve.

Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

If dust protection cap for nozzle is used, then make sure that cap is removed before starting of monitor

#### FOAM REACH DATA

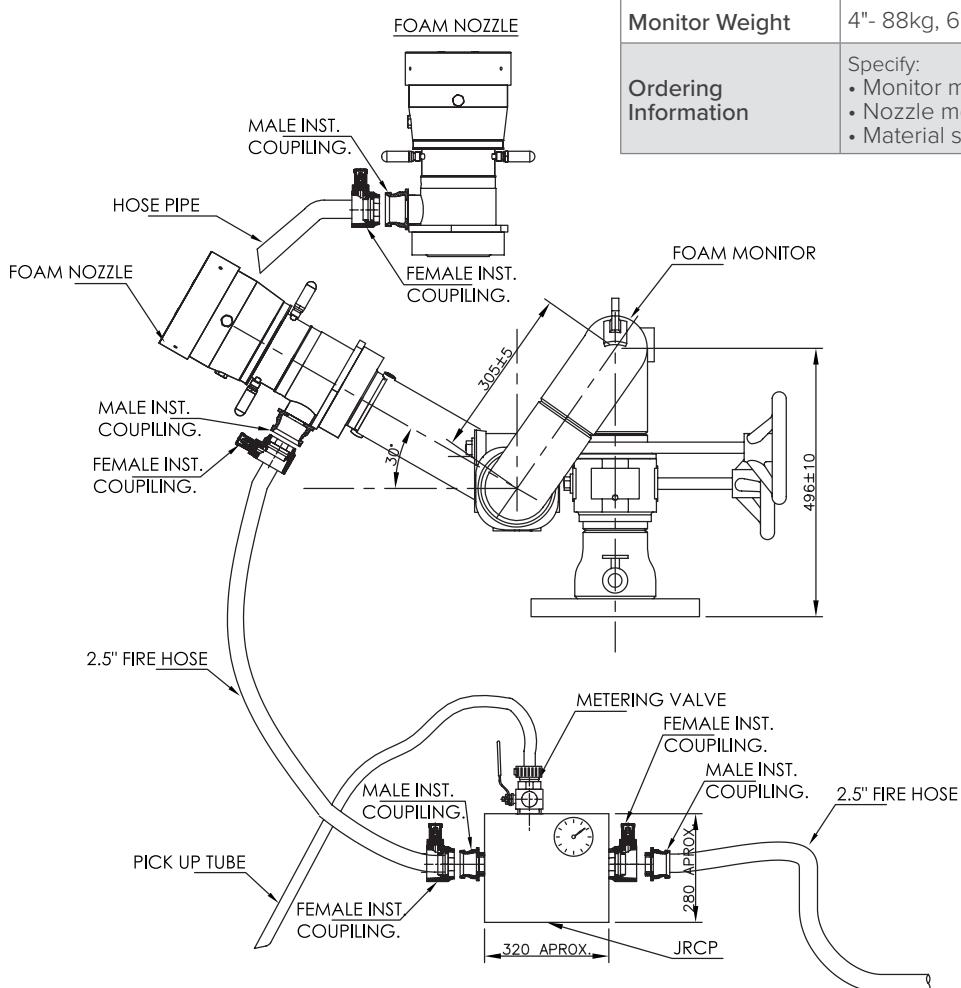
Set Flow Rate, GPM	Concentrate induction Rate in %	Monitor Base Pressure in kg/cm <sup>2</sup>	Reach in Still Air (in meters)	
			Water	Foam
500	3	7	50	45
750	3	7	60	55
1000	3	7	65	60

#### \*NOTES:

- Monitor inlet flange standard size is 100NB (4") to ANSI B16.5, 150#; Other optional sizes 150NB (6")
- Flow is within ±5%
- Standard Supply-SS304
- Optional Supply-A) SS316
- Foam reach data is in still air at 30/35° Nozzle elevation

#### TECHNICAL DATA

Nominal Size	4" (100 mm)
Max. Service Pressure	175 psi (12 bar)
Nozzle Model (Self Inducting Nozzle)	NF-VFN-JRCP-500-750-1000
Flow Rate	500 GPM, 750 GPM, 1000 GPM
Induction Rate	3% (3 to 3.9%)
Factory Hydro Test Pressure	750 psi (52 bar)
Material	Stainless Steel
Optional Supply	Pressure Gauge
Inlet Connection	4" or 6" (100 or 150 NB) Flange to ANSI B16.5 #150, R.F.
End Connection	BSP Monitor & Nozzle 5½ NH/BSI Female Thread
Pickup Tube	Clear PVC, Spiral wound with SS dip Tube
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Double hand wheel driven enclosed worm gear
Finish	Red RAL 3000 Standard supply. Optional-As per customer requirement
Monitor Weight	4"- 88kg, 6"- 91kg
Ordering Information	Specify: • Monitor model & inlet size • Nozzle model & flow • Material specification



# FOAM MONITOR

MODEL: NFM-1000 WITH NOZZLE MODEL NF-VFN-500-750-1000



## DESCRIPTION

Corrosion resistant stainless steel monitor Model NFM-1000 is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other industrial application. The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with fix flow or variable flow nozzle.

The monitor has welded stainless steel 4" (100 mm) waterway. The vertical and horizontal rotation is through stainless steel swivel joints with double row of stainless steel ball bearing. Both vertical and horizontal movement is controlled with handwheel driven enclosed worm gear.

The monitor has large flow capacity and can be manually operated by a single fire fighter. The design ensures to prevent jet reaction forces from effecting the horizontal and vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable from 90° above horizontal to 45° below horizontal. The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, all the flow specified is at monitor base inlet pressure.

## NOZZLE OPERATION INSTRUCTIONS

### FLOW CHANGE

Variable flow Nozzle model NF-VFN-500-750-1000 to change the flow, press the knob and rotate to match the arrow of knob and marking line on Nozzle. After flow setting set the concentrate induction by rotating the knob of induction valve.

### CHANGE SPRAY TO JET

To change spray angle, rotate the pattern sleeve clockwise for straight stream or anticlockwise to spray / fog pattern.

### INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of equipment.

Before assembly of the monitor to supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance,



procedure must be followed as given in the manual and also as per the local authority having jurisdiction. It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.

Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation.

Each monitor must be operated with full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

Periodical flushing of the Nozzle with clean water and movement of moving parts, will allow Nozzle to operate as designed.

### CAUTION

A trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully, the flange bolts must be tightened uniformly.

The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is critical that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve.

Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

If dust protection cap for nozzle is used, then make sure that cap is removed before starting of monitor

## TECHNICAL DATA

Nominal Size	4" (100 mm)
Max. Service Pressure	175 psi (12 bar)
Nozzle Model (Self Inducting Nozzle)	NF-VFN-500-750-1000
Flow Rate	500 GPM 750 GPM 1000 GPM
Induction Rate	3% (3 to 3.9%)
Factory Hydro Test Pressure	750 psi (52 bar)
Material	Stainless Steel
Optional Supply	Pressure Gauge
Inlet Connection	4" or 6" (100 or 150 NB) Flange to ANSI B16.5 #150, R.F.
End Connection	BSP Monitor & Nozzle 5½ NH/BSI Female Thread
Pickup Tube	Clear PVC, Spiral wound with SS dip Tube
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Double hand wheel driven enclosed worm gear
Finish	Red RAL 3000 Standard supply. Optional-As per customer requirement
Monitor Weight	4"-71kg 6"-74kg
Ordering Information	Specify: • Monitor model & inlet size • Nozzle model & flow • Material specification

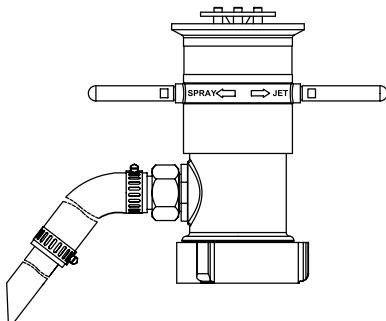
## FOAM REACH DATA

Set Flow Rate, GPM	Concentrate induction Rate in %	Monitor Base Pressure in kg/cm <sup>2</sup>	Reach in Still Air (in meters)	
			Water	Foam
500	3	7	50	45
750	3	7	60	55
1000	3	7	65	60

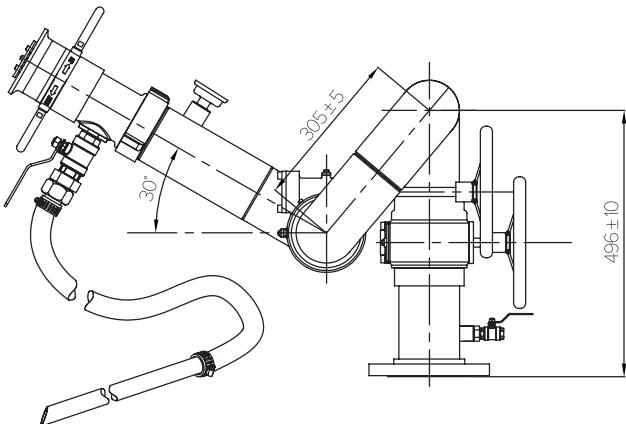
### \*NOTES:

- Monitor inlet flange standard size is 100NB (4") to ANSI B16.5, 150#. Other optional sizes 150NB (6")
- Flow is within ±5%
- Standard Supply-SS304
- Optional Supply-A) SS316
- Foam reach data is in still air at 30/35° Nozzle elevation

## FIX FLOW FOAM NOZZLE



## DIMENSIONS



# FOAM MONITOR

MODEL: NFM-2000 WITH NOZZLE MODEL NF-VFN-JRCP-1000-1500-2000



## DESCRIPTION

Corrosion resistant stainless steel monitor Model NFM-2000 is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with fix flow or variable flow nozzle.

The monitor has welded stainless steel 4" (100 mm) waterway. The vertical and horizontal rotation is through stainless steel swivel joints with double row of stainless steel ball bearing. Both vertical and horizontal movement is controlled with handwheel driven enclosed worm gear.

The monitor has large flow capacity and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable from 90° above horizontal to 45° below horizontal. The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, all the flow specified is at monitor base inlet pressure.

## NOZZLE OPERATION INSTRUCTIONS

### FLOW CHANGE

Variable flow Nozzle model NF-VFN-JRCP-1000-1500-2000 to change the flow, press the knob and rotate to match the arrow of knob and marking line on Nozzle. After flow setting set the concentrate induction by rotating the knob of induction valve. JRCP with metering valve shall be provided.

### CHANGE SPRAY TO JET

To change spray angle, rotate the pattern sleeve clockwise for straight stream or anticlockwise to spray/fog pattern.

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of equipment. Before assembly of the monitor to supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or



recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction. It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.

Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage. Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation.

Each monitor must be operated with full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition. Periodical flushing of the Nozzle with clean water and movement of moving parts, will allow Nozzle to operate as designed.

### CAUTION

A trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury. The nozzle must be fixed to the monitor carefully, the flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is critical that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve.

Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage. Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

If dust protection cap for nozzle is used, then make sure that cap is removed before starting of monitor

#### FOAM REACH DATA

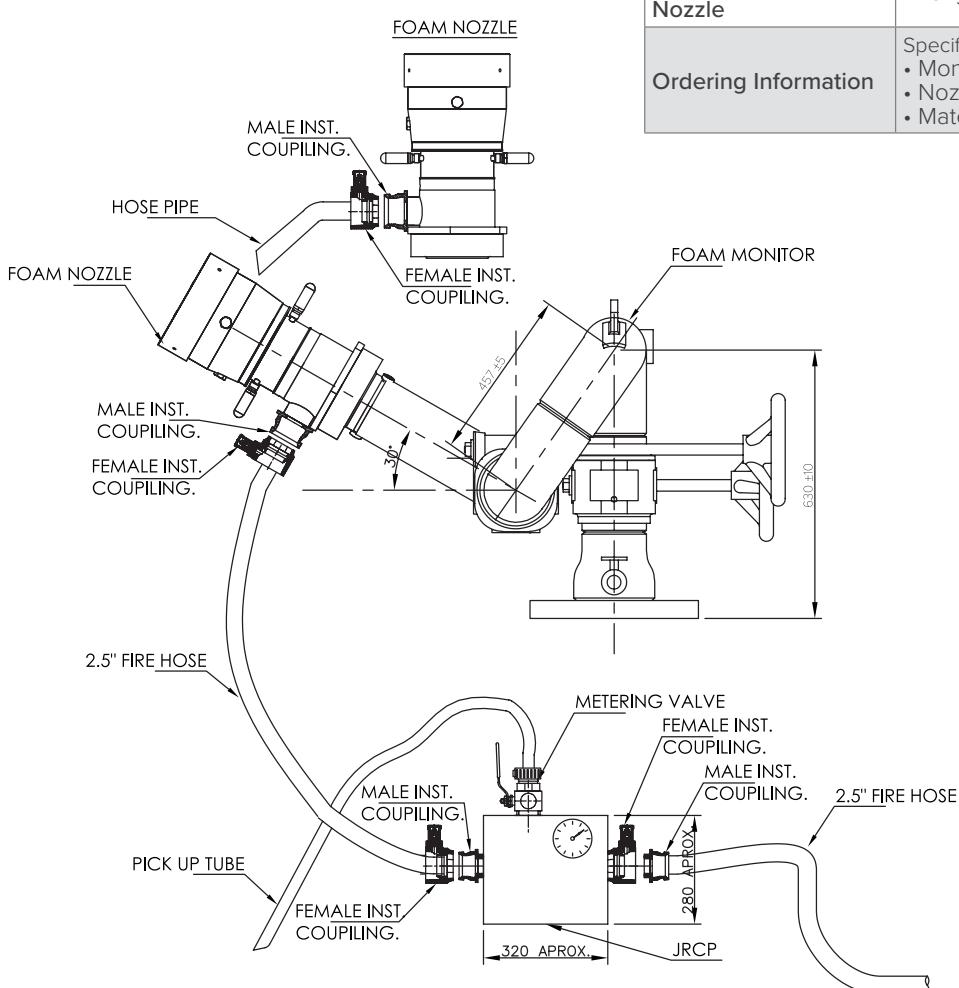
Set Flow Rate, GPM	Concentrate induction Rate in %	Monitor Base Pressure in kg/cm <sup>2</sup>	Reach in Still Air (in meters)	
			Water	Foam
1000	3	7	65	60
1500	3	7	72	68
2000	3	7	80	74

#### \*NOTES:

- Monitor inlet flange standard size is 150NB (6") to ANSI B16.5, 150#, Other optional sizes 100NB (4")
- Flow is within ±5%
- Standard Supply-SS304
- Optional Supply-A) SS316
- Foam reach data is in still air at 30/35° Nozzle elevation

#### TECHNICAL DATA

Nominal Size	6" (150 mm)
Max. Service Pressure	175 psi (12 bar)
Nozzle Model (Self Inducting Nozzle)	NF-VFN-JRCP-1000-1500-2000
Flow Rate	1000 GPM, 1500 GPM, 2000 GPM
Induction Rate	3% (3 to 3.9%)
Factory Hydro Test Pressure	750 psi (52 bar)
Material	Stainless Steel
Optional Supply	Pressure Gauge
Inlet Connection	(150 NB) Flange to ANSI B16.5 #150, R.F.
End Connection	NH Female Thread
Pickup Tube	Clear PVC, Spiral wound with SS dip Tube
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Double hand wheel driven enclosed worm gear
Finish	Red RAL 3000 Standard supply. Optional-As per customer requirement
Monitor Weight with Nozzle	170kg
Ordering Information	Specify: • Monitor model & inlet size • Nozzle model & flow • Material specification



# FOAM MONITOR

MODEL: NFM-2000 WITH NOZZLE MODEL NF-VFN-1000-1500-2000  
MODEL: NFM-2000-CA WITH NOZZLE MODEL NF-VFN-GM-1000-1500-2000



## DESCRIPTION

Corrosion resistant stainless steel monitor Model NFM-2000 is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with fix flow or variable flow nozzle.

The monitor has welded stainless steel 6" (150 mm) waterway. The vertical and horizontal rotation is through stainless steel swivel joints with double row of stainless steel ball bearing. Both vertical and horizontal movement is controlled with handwheel driven enclosed worm gear.

The monitor has large flow capacity and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable from 90° above horizontal to 45° below horizontal. The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, all the flow specified is at monitor base inlet pressure.

## NOZZLE OPERATION INSTRUCTIONS

### FLOW CHANGE

Variable flow Nozzle model NF-VFN-1000-1500-2000, NF-VFN-GM-1000-1500-2000 change the flow, press the knob and rotate to match the arrow of knob and marking line on Nozzle. After flow setting set the concentrate induction by rotating the knob of induction valve.

### CHANGE SPRAY TO JET

To change spray angle, rotate the pattern sleeve clockwise for straight stream or anticlockwise to spray / fog pattern.

### NOZZLE DUST PROTECTION CAP

Nozzle Dust Protection Cap is optional supply. This cap protects nozzles operating parts from dust and bird nesting.

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of equipment. Before assembly of the monitor to supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.



The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction. It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.

Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage. Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation.

Each monitor must be operated with full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition. Periodical flushing of the Nozzle with clean water and movement of moving parts, will allow Nozzle to operate as designed.

### CAUTION

A trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury. The nozzle must be fixed to the monitor carefully, the flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is critical that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve.

Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage. Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

If dust protection cap for nozzle is used, then make sure that cap is removed before starting of monitor

## TECHNICAL DATA

Nominal Size	6" (150 mm)
Max. Service Pressure	175 psi (12 bar)
Nozzle Model ( <i>Self Inducting Nozzle</i> )	NF-VFN-1000-1500-2000 NF-VFN-GM-1000-1500-2000
Flow Rate	1000 GPM 1500 GPM 2000 GPM
Induction Rate	3% (3 to 3.9%)
Factory Hydro Test Pressure	750 psi (52 bar)
Material	Stainless Steel
Optional Supply	Pressure Gauge
Inlet Connection	(150 NB) Flange to ANSI B16.5 #150, R.F.
End Connection	NH Female Thread
Pickup Tube	Clear PVC, Spiral wound with SS dip Tube
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Double hand wheel driven enclosed worm gear
Finish	Red RAL 3000 Standard supply. Optional-As per customer requirement
Monitor Weight with Nozzle	160kg
Ordering Information	Specify: • Monitor model & inlet size • Nozzle model & flow • Material specification

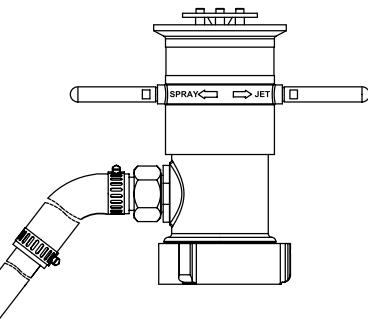
## FOAM REACH DATA

Set Flow Rate, GPM	Concentrate induction Rate in %	Monitor Base Pressure in kg/cm <sup>2</sup>	Reach in Still Air (in meters)	
			Water	Foam
1000	3	7	65	60
1500	3	7	72	68
2000	3	7	80	74

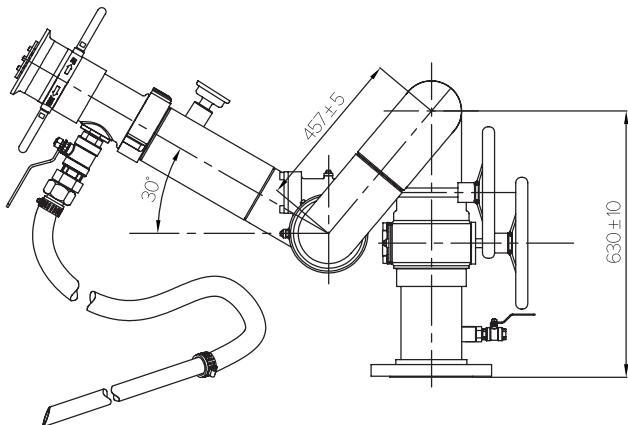
### \*NOTES:

- Monitor inlet flange standard size is 150NB (6") to ANSI B16.5, 150#; Other optional sizes 100NB (4")
- Flow is within ±5%
- Standard Supply-SS304
- Optional Supply-A) SS316
- Foam reach data is in still air at 30/35° Nozzle elevation

## FIX FLOW FOAM NOZZLE



## DIMENSIONS



# FOAM MONITOR

MODEL: NFM-4000 NOZZLE MODEL NF-VFN-JRCP-2000-3000-4000



## DESCRIPTION

Corrosion resistant stainless steel monitor Model NFM-4000 is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with fix flow or variable flow nozzle.

The monitor has welded stainless steel 8" (200 mm) waterway. The vertical and horizontal rotation is through stainless steel swivel joints with double row of stainless steel ball bearing. Both vertical and horizontal movement is controlled with handwheel driven enclosed worm gear.

The monitor has large flow capacity and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable from 90° above horizontal to 45° below horizontal. The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, all the flow specified is at monitor base inlet pressure.

## NOZZLE OPERATION INSTRUCTIONS

### FLOW CHANGE

Variable flow Nozzle model NF-VFN-JRCP-2000-3000-4000 to change the flow, press the knob and rotate to match the arrow of knob and marking line on Nozzle. After flow setting set the concentrate induction by rotating the knob of induction valve. JRCP metering valve shall be provided.

### CHANGE SPRAY TO JET

To change spray angle, rotate the pattern sleeve clockwise for straight stream or anticlockwise to spray/fog pattern.

### INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of equipment. Before assembly of the monitor to supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in



the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction. It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.

Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage. Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation.

Each monitor must be operated with full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition. Periodical flushing of the Nozzle with clean water and movement of moving parts, will allow Nozzle to operate as designed.

### CAUTION

A trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury. The nozzle must be fixed to the monitor carefully, the flange bolts must be tightened uniformly.

The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is critical that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve.

Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

If dust protection cap for nozzle is used, then make sure that cap is removed before starting of monitor

#### FOAM REACH DATA

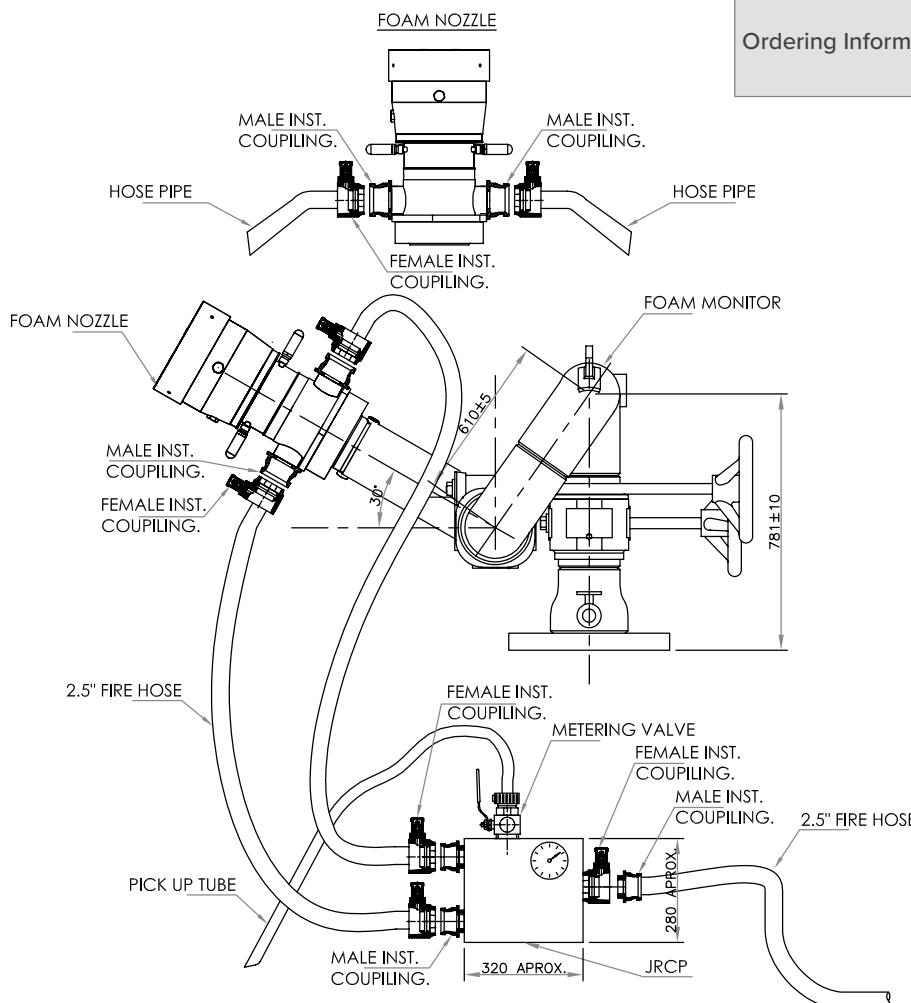
Set Flow Rate, GPM	Concentrate induction Rate in %	Monitor Base Pressure in kg/cm <sup>2</sup>	Reach in Still Air (in meters)	
			Water	Foam
2000	3	7	77	70
3000	3	7	84	75
4000	3	7	92	82

#### \*NOTES:

- Monitor inlet flange standard size is 200NB (8") to ANSI B16.5, 150#,
- Flow is within  $\pm 5\%$
- Standard Supply-SS304
- Optional Supply-A) SS316
- Foam reach data is in still air at 30/35° Nozzle elevation

#### TECHNICAL DATA

Nominal Size	8" (200 mm)
Max. Service Pressure	175 psi (12 bar)
Nozzle Model (Self Inducting Nozzle)	NF-VFN-JRCP-1000-3000-4000
Flow Rate	2000 GPM, 3000 GPM, 4000 GPM
Induction Rate	3% (3 to 3.9%)
Factory Hydro Test Pressure	750 psi (52 bar)
Material	Stainless Steel
Optional Supply	Pressure Gauge
Inlet Connection	8" Flange to ANSI B16.5 #150, R.F.
End Connection	6STPI Female Thread
Pickup Tube	Clear PVC, Spiral wound with SS dip Tube
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Double hand wheel driven enclosed worm gear
Finish	Red RAL 3000 Standard supply. Optional-As per customer requirement
Monitor Weight with Nozzle	440kg
Ordering Information	Specify: • Monitor model & inlet size • Nozzle model & flow • Material specification



# FOAM MONITOR

MODEL: NFM-4000 WITH NOZZLE MODEL NF-VFN-2000-3000-4000



## DESCRIPTION

Corrosion resistant stainless steel monitor Model NFM-4000 is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with fix flow or variable flow nozzle.

The monitor has welded stainless steel 8" (200 mm) waterway. The vertical and horizontal rotation is through stainless steel swivel joints with double row of stainless steel ball bearing. Both vertical and horizontal movement is controlled with handwheel driven enclosed worm gear.

The monitor has large flow capacity and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable from 90° above horizontal to 45° below horizontal. The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, all the flow specified is at monitor base inlet pressure.

## NOZZLE OPERATION INSTRUCTIONS

### FLOW CHANGE

Variable flow Nozzle model NF-VFN-2000-3000-4000 change the flow, press the knob and rotate to match the arrow of knob and marking line on Nozzle. After flow setting set the concentrate induction by rotating the knob of induction valve.

### CHANGE SPRAY TO JET

To change spray angle, rotate the pattern sleeve clockwise for straight stream or anticlockwise to spray / fog pattern.

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of equipment. Before assembly of the monitor to supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement



or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction. It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.

Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage. Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation.

Each monitor must be operated with full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition. Periodical flushing of the Nozzle with clean water and movement of moving parts, will allow Nozzle to operate as designed.

### CAUTION

A trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury. The nozzle must be fixed to the monitor carefully, the flange bolts must be tightened uniformly.

The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is critical that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve.

Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

If dust protection cap for nozzle is used, then make sure that cap is removed before starting of monitor

#### FOAM REACH DATA

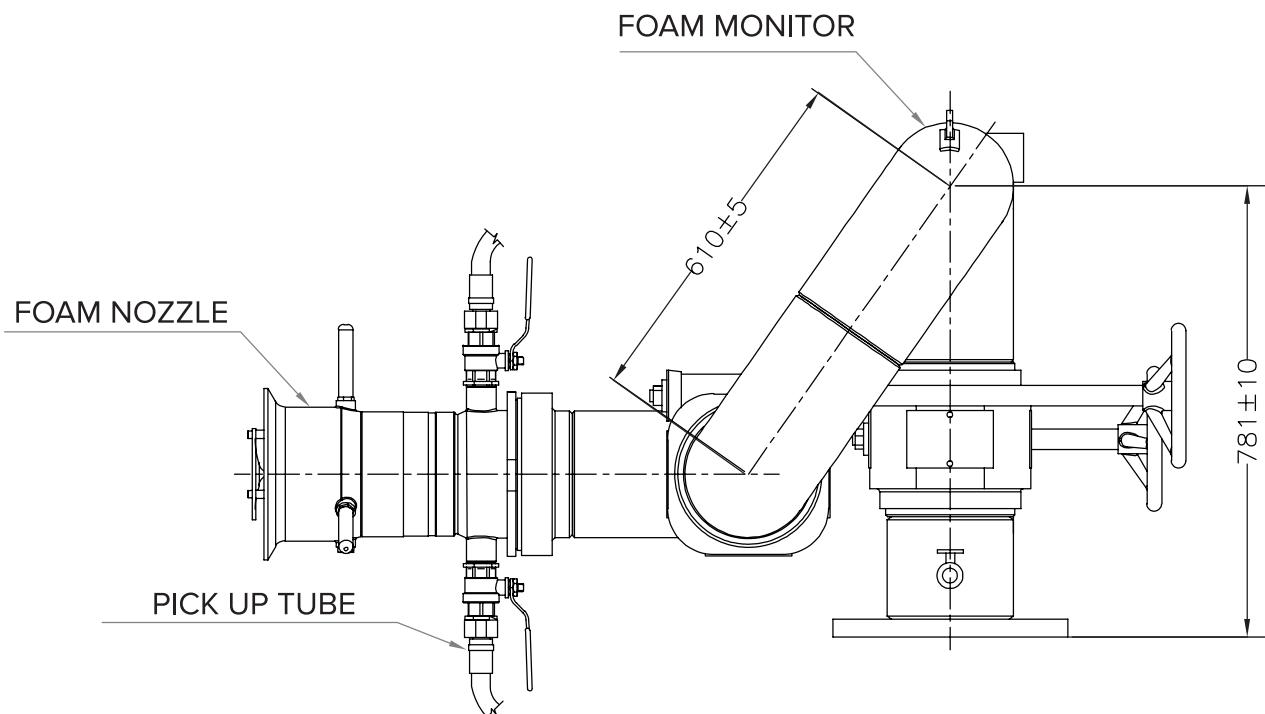
Set Flow Rate, GPM	Concentrate induction Rate in %	Monitor Base Pressure in kg/cm <sup>2</sup>	Reach in Still Air (in meters)	
			Water	Foam
2000	3	7	77	70
3000	3	7	84	75
4000	3	7	92	82

#### \*NOTES:

- Monitor inlet flange standard size is 200NB (8") to ANSI B16.5, 150#;
- Flow is within ±5%
- Standard Supply-SS304
- Optional Supply-A) SS316
- Foam reach data is in still air at 30/35° Nozzle elevation

#### TECHNICAL DATA

Nominal Size	8" (200 mm)
Max. Service Pressure	175 psi (12 bar)
Nozzle Model (Self Inducting Nozzle)	NF-VFN-2000-3000-4000
Flow Rate	2000 GPM 3000 GPM 4000 GPM
Induction Rate	3% (3 to 3.9%)
Factory Hydro Test Pressure	750 psi (52 bar)
Material	Stainless Steel
Optional Supply	Pressure Gauge
Inlet Connection	8" Flange to ANSI B16.5 #150, R.F.
End Connection	6STPI Female Thread
Pickup Tube	Clear PVC, Spiral wound with SS dip Tube
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Double hand wheel driven enclosed worm gear
Finish	Red RAL 3000 Standard supply. Optional-As per customer requirement
Monitor Weight with Nozzle	425kg
Ordering Information	Specify: • Monitor model & inlet size • Nozzle model & flow • Material specification



# MONITOR

MODEL: CSM300



## DESCRIPTION

The NAFFCO monitor Model-CSM300 is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial applications.

The Monitor possesses several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 800 GPM (3030 LPM).

The monitor has welded carbon steel 3" (80 mm) waterway. All steel parts are hot dip galvanized and epoxy painted for excellent corrosion resistant. The vertical and horizontal rotation is through corrosion resistant swiveling joints with double row of stainless steel ball bearing. Both vertical and horizontal movements are controlled by handle and twist lock.

The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and the vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation +90° above horizontal and -45° below horizontal.

The water vanes in discharge tube reduce the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction, loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor. After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction. It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.



Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

## CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury. The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased / decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

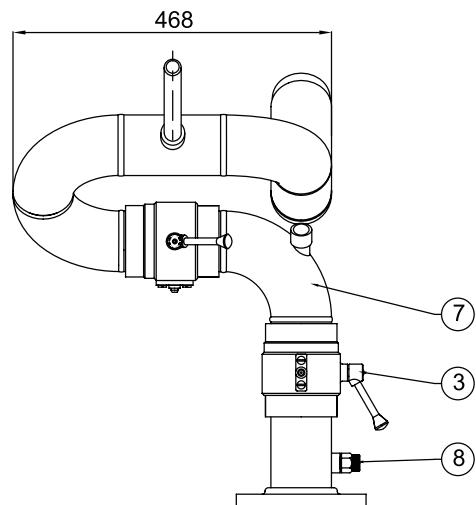
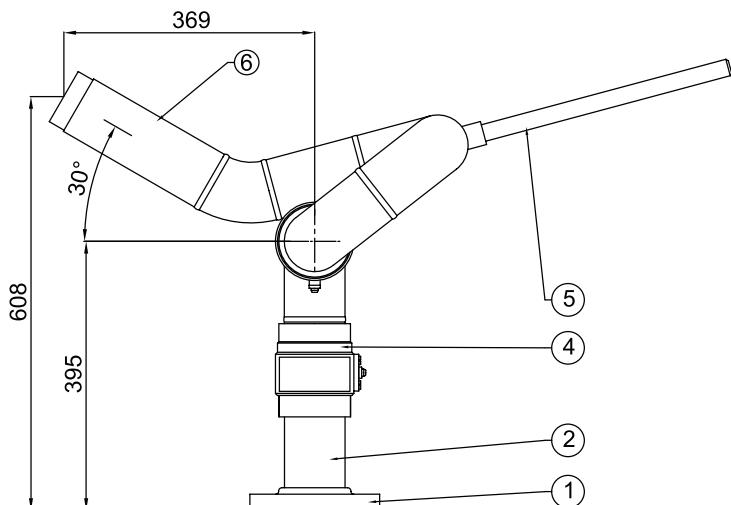
Nominal Size	3" (80 mm)
Material	Carbon Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	800 GPM (3030 LPM)
Factory Hydrostatic Test Pressure	27.6 bar (400 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	3" or 4" (80NB or 100NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	3" BSP (M)
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handle with twist lock
Finish	Red to RAL 3001
Weight (Approx)	35 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

Sl.No.	Description	Material Specification
1	Base Flange	ASTM A105
2	Inlet Pipe	ASTM A106 WPB SCH40
3	Lock V & H	Bronze
4	Swivel Joint	Bronze / ASTM B62
5	Handle	Steel
6	Barrel Pipe	ASTM A106 SCH40
7	Elbow	ASTM A234 WPB SCH40
8	Drain Valve	Brass

### \*NOTES:

- Monitor inlet flange standard size is 80 NB (3") to ANSI B16.5, 150#, other sizes 100NB (4") or 150NB (6") are optional.
- All dimensions in mm and are approximate.
- Nozzle suitable to this Monitor is MSN800, SSN500 & SSN700 Nozzle



# MONITOR

## MODEL: CSM400



### DESCRIPTION

The NAFFCO Monitor Model-CSM400 is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial applications.

The Monitor possesses several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 1250 GPM (4730 LPM).

The monitor has welded carbon steel 4" (100 mm) water way. All steel parts are hot dip galvanized and epoxy painted for excellent corrosion resistance. The vertical and horizontal rotation is through corrosion resistant bronze swiveling joints with double row of stainless steel ball bearing. Both vertical and horizontal movements are controlled with hand wheel driven fully enclosed worm gears and protected from the elements.

The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and the vertical position of the monitor. The counter balance is not required to offset the weight of the nozzle. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation from 90° above horizontal to 45° below horizontal.

The water vanes in discharge tube reduce the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

### INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.



Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage. Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

### CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury. The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased / decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

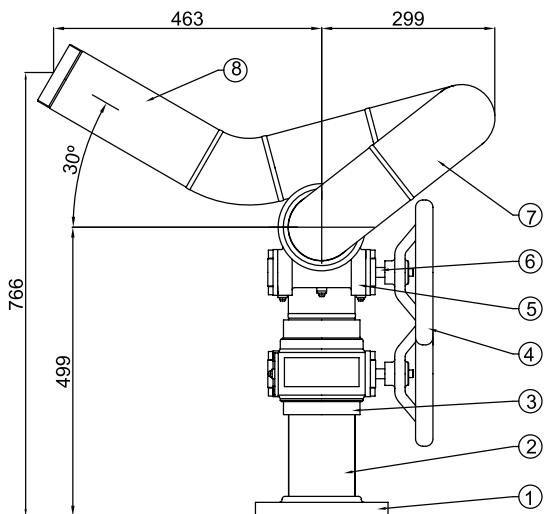
Nominal Size	4" (100 mm)
Material	Carbon Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	1250 GPM (4730 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	4" or 6" (100NB or 150NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	4" BSP (M)
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handwheel
Finish	Red to RAL 3001
Weight (Approx)	76 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

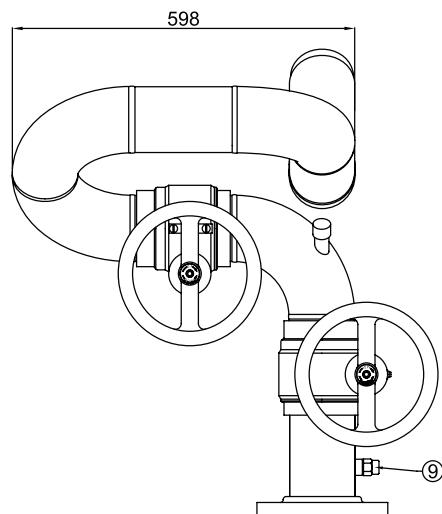
Sl.No.	Description	Material Specification
1	Base Flange	ASTM A105
2	Inlet Pipe	ASTM A106 WPB SCH40
3	Swivel Joint	Bronze / ASTM B62
4	Hand Wheel	Cast Iron
5	Worm Wheel	Bronze / ASTM B62
6	Worm Shaft	Stainless Steel
7	Elbow	ASTM A234 WPB SCH40
8	Barrel Pipe	ASTM A106 WPB SCH40
9	Drain Valve	Brass

### \*NOTES:

- Monitor inlet flange standard size is 100 NB (4") to ANSI B16.5, 150#, other sizes 150NB (6") are optional.
- All dimensions in mm and are approximate.
- Nozzle suitable to this Monitor is MSN2000 & SSN1000 Nozzle



ELEVATION



SIDE VIEW

# MONITOR

## MODEL: CSM600



### DESCRIPTION

The NAFFCO monitor Model CSM600 is durable manual controlled low profile monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial applications.

The Monitor possesses several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 3300 GPM (12500 LPM).

The monitor has welded carbon steel 6" (150 NB) water way. All steel parts are hot dip galvanized and epoxy painted for excellent corrosion resistance. The vertical and horizontal rotation is through corrosion resistant bronze swiveling joints with double row of stainless steel ball bearing. Both vertical and horizontal movements are controlled with hand wheel driven fully enclosed worm gears and protected from the elements.

The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting horizontal and vertical position of the monitor. The counter balance is not required to offset the weight of the nozzle. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable with fix stop from +90° above horizontal to -65° below horizontal.

The water vanes in discharge tube reduce the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

### INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor. After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use. Carry out functional test every month for



the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage. Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease.

Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

### CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury. The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

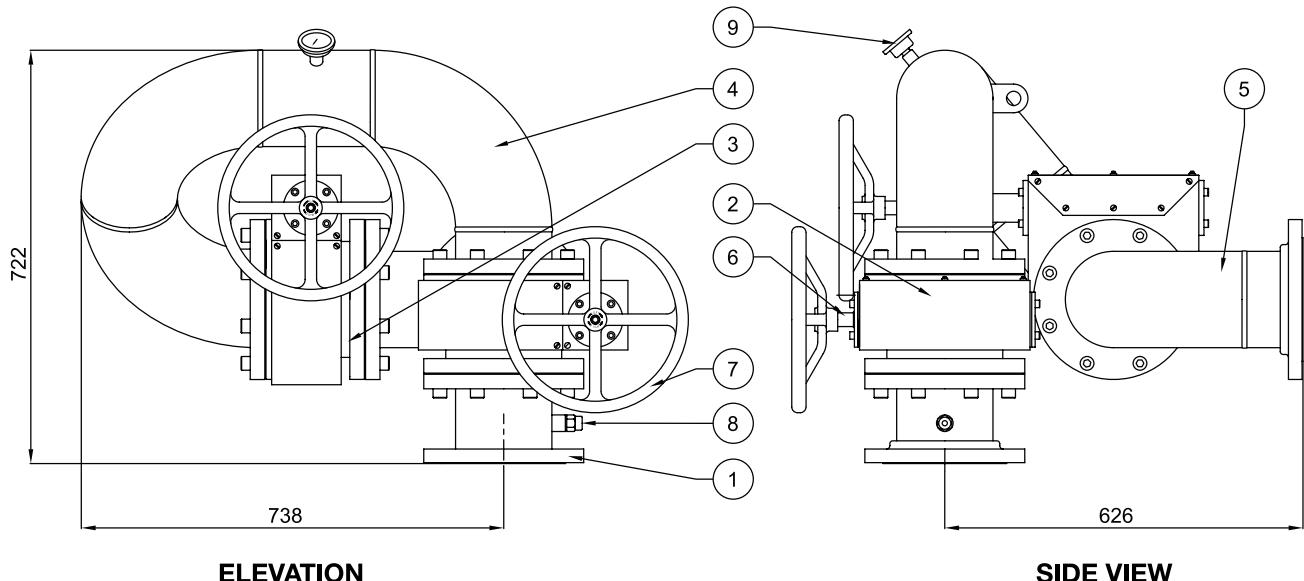
Nominal Size	6" (150 mm)
Material	Carbon Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	3300 GPM (12500 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	6" (150NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	6" (150NB) Flange to ANSI B16.5 #150, R.F.
Monitor Elevation	90° above horizontal & 65° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handwheel driven fully enclosed worm gear.
Finish	Red to RAL 3001
Weight (Approx)	224 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

Sl.No.	Description	Material Specification
1	Base Flange	ASTM A105
2	Worm Wheel	Bronze / ASTM B62
3	Swivel Joint	Bronze / ASTM B62
4	Elbow	ASTM A234 WPB SCH40
5	Discharge Elbow	ASTM A234 WPB SCH40
6	Worm Shaft	Stainless Steel
7	Hand Wheel	Cast Iron
8	Drain Valve	Brass
9	Pressure Gauge	Glycerine Filled 0 to 16 kg/cm <sup>2</sup>

### \*NOTES:

- Monitor inlet and outlet flange standard size is 150 NB (6") to ANSI B16.5, 150#.
- All dimensions in mm and are approximate.
- Nozzle suitable to this Monitor is MSN2200
- FM Approval from 1500 to 2200 GPM only.



# MONITOR

## MODEL: SSM350



### DESCRIPTION

Corrosion resistant stainless steel monitor NAFFCO Model-SSM350 is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other industrial applications.

The Monitor possesses several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 800 GPM (3030 LPM).

The monitor has welded stainless steel 3" (80 mm) water way. The vertical and horizontal rotation is through stainless steel swiveling joints with double row of stainless steel ball bearing. Both vertical and horizontal movements are controlled by handle with twist lock.

The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and the vertical position of the monitor.

The monitor has the ability for 360° continuous horizontal rotation and angle of elevation from 90° above horizontal and 45° below horizontal.

The water vanes in discharge tube reduce the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

### INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.



Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

### CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased / decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

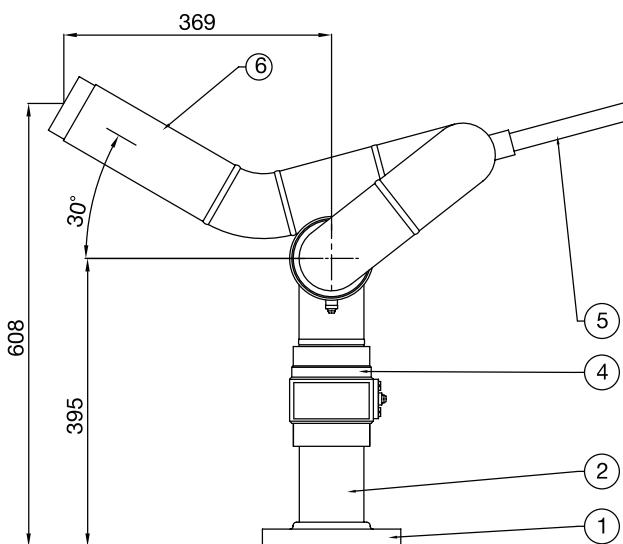
Nominal Size	3" (80 mm)
Material	Stainless Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	800 GPM (3030 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Stainless Steel with double row of Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x √Pressure in kg/cm <sup>2</sup> x 0.0228
Inlet Connection	3" or 4" (80 or 100NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	3" BSP(M)
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handle with twist lock
Finish	Red to RAL 3001
Weight (Approx)	36 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

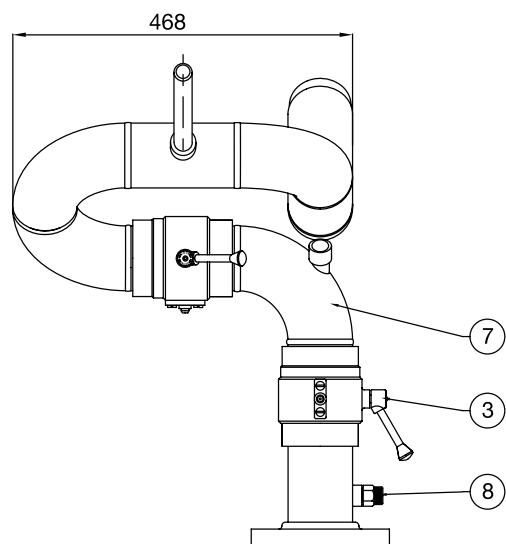
Sl.No.	Description	Material Specification
1	Base Flange	Stainless Steel
2	Reducer	Stainless Steel
3	Lock	Stainless Steel
4	Swivel Joint	Stainless Steel
5	Handle	Stainless Steel
6	Barrel Pipe	Stainless Steel
7	Elbow	Stainless Steel
8	Drain Valve	Brass

### \*NOTES:

- Monitor inlet flange standard size is 80 NB (3") to ANSI B16.5, 150#, other sizes 100NB (4") are optional.
- All dimensions in mm and are approximate.
- Nozzle suitable to this Monitor is MSN800, SSN500 & SSN700 Nozzle



**ELEVATION**



**SIDE VIEW**



# MONITOR

## MODEL: BZM450

### DESCRIPTION

Corrosion resistant bronze monitor Model-BZM450 is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial applications.

The Monitor possesses several design features that provides ease of operation, minimum maintenance and resistance to corrosive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 2000 GPM (7570 LPM). The monitor has rugged, corrosion resistant cast bronze construction. The vertical and horizontal rotation is through corrosion resistant bronze swivel joints with double row of stainless steel ball bearing.

Both vertical and horizontal movements are controlled with hand wheel driven fully enclosed worm gears and protected from the elements.

The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and the vertical position of the monitor.

The counter balance is not required to offset the weight of the nozzle. The monitor has the ability for 360° continuous horizontal rotations and angle of elevation is 90° above horizontal and 65° below horizontal.

The water vanes in discharge tube reduce the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

### INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.



Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

### CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased / decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

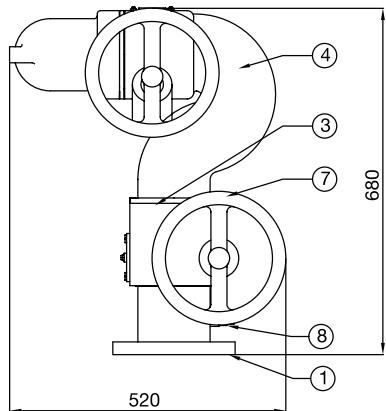
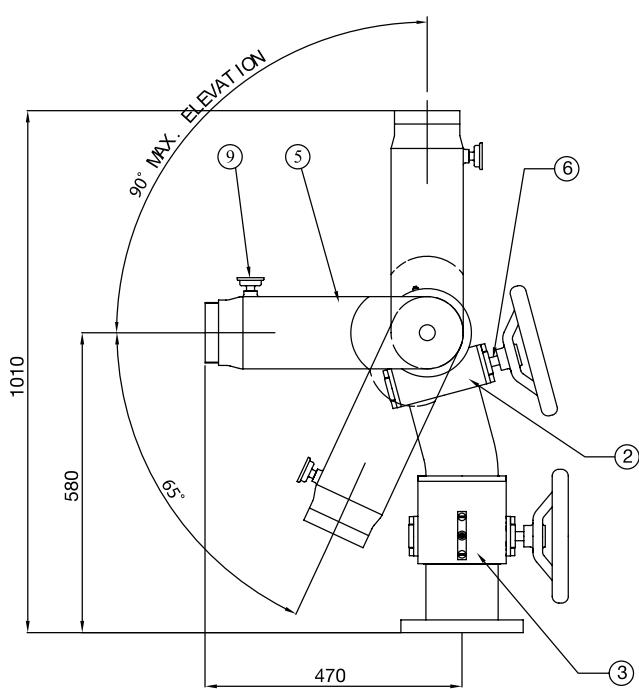
Nominal Size	4" (100 mm)
Material	Cast Bronze
Max. Service Pressure	175 psi (12 bar)
Max. Flow	2000 GPM (7570 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	4" or 6" (100 or 150NB) Flange to ANSI B16.24 #150, F.F.
Outlet Connection	4" BSP(M)
Monitor Elevation	90° above horizontal & 65° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handwheel
Finish	Red to RAL 3001
Weight (Approx)	92 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

Sl.No.	Description	Material Specification
1	Base Flange	Bronze / ASTM B62
2	Worm Wheel	Bronze / ASTM B62
3	Swivel Joint	Bronze / ASTM B62
4	Elbow	Bronze / ASTM B62
5	Discharge Elbow	Bronze / ASTM B62
6	Worm Shaft	Stainless Steel
7	Hand Wheel	Cast Iron
8	Drain Valve	Brass
9	Pressure Gauge	Glycerine Filled 0 to 16 kg/cm <sup>2</sup>

### \*NOTES:

- Monitor inlet flange standard size is 100 NB (4") to ANSI B16.24, 150#, other sizes 150NB (6") are optional.
- All dimensions in mm and are approximate.
- Nozzle suitable to this Monitor is MSN2000 & SSN1000 Nozzle



# MONITOR

## MODEL: NF-CSM250

### DESCRIPTION

The monitor is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other industrial applications.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 600 GPM (2270 LPM).

The monitor has welded carbon steel 2.5" (65 mm) waterway. All steel parts are hot dip galvanized and epoxy painted for excellent corrosion resistance. The vertical and horizontal rotation is through corrosion resistant bronze swiveling joint with double row of stainless steel ball bearing. Both vertical and horizontal movements are controlled by handle with twist lock. The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and vertical position of the monitor.

The monitor has the ability for 360° continuous horizontal rotation and angle of elevation +90° above horizontal and 45° below horizontal. The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

### INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.



Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

### CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

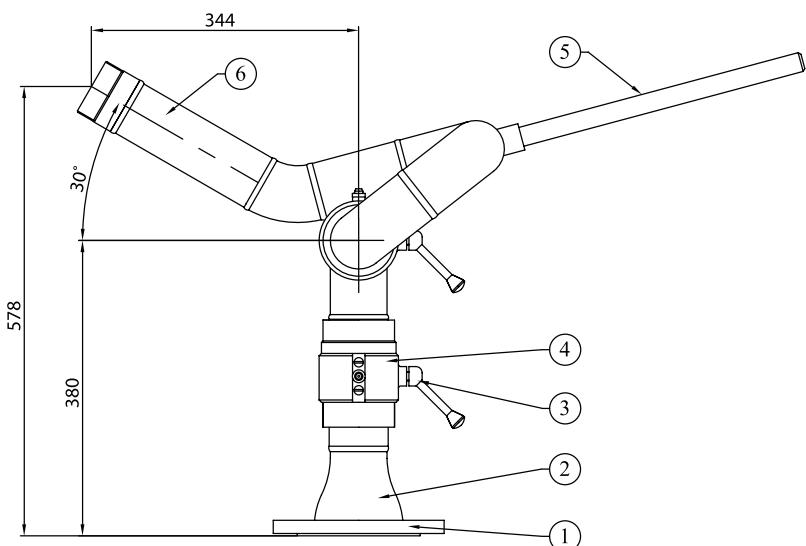
Nominal Size	2½" (65 mm)
Material	Carbon Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	600 GPM (2270 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	2.5", 3" or 4" (65, 80 or 100NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	2.5" BSP(M)
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handle with twist lock
Finish	Red to RAL 3001
Weight (Approx)	29 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

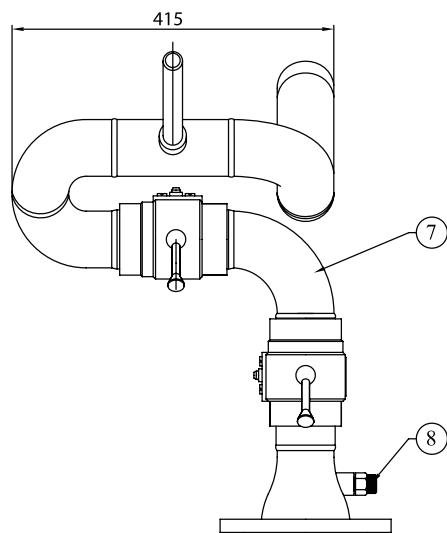
Sl.No.	Description	Material Specification
1	Base Flange	ASTM A105
2	Reducer	ASTM A234 WPB SCH40
3	Lock	Brass
4	Swivel Joint	Bronze/ASTM B62
5	Handle	Steel
6	Barrel Pipe	ASTM A106 SCH40
7	Elbow	ASTM A234 WPB SCH40
8	Drain Valve	Brass

### \*NOTES:

- Monitor inlet flange standard size is 80 NB (3") to ANSI B16.5, 150#, other sizes 65NB (2.5") or 100NB (4") are optional.
- All dimensions in mm and are approximate.



ELEVATION



SIDE VIEW

# MONITOR

## MODEL: NF-CSM350

### DESCRIPTION

The monitor is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 800 GPM (3030 LPM).

The monitor has welded carbon steel 3" (80 mm) waterway. All steel parts are hot dip galvanized and epoxy painted for excellent corrosion resistance. The vertical and horizontal rotation is through corrosion resistant bronze swivel joints with double row of stainless steel ball bearing. Both vertical and horizontal movements are controlled with hand wheel driven fully enclosed worm gears and protect from the elements.

The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and the vertical position of the monitor. The counter balance is not required to offset the weight of the nozzle. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation from 90° above horizontal to 45° below horizontal.

The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

### INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage



has taken place to any component and the monitor is ready for use. Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

### CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased / decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

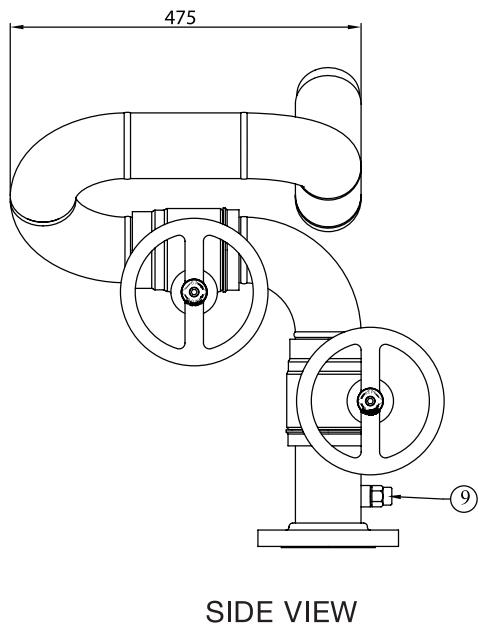
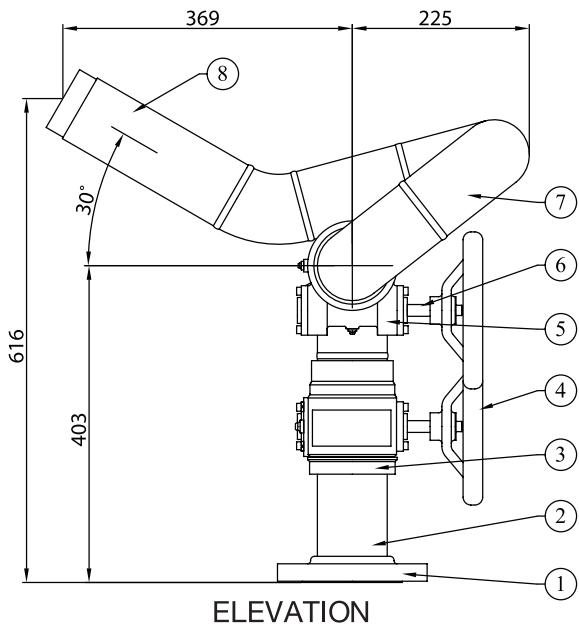
Nominal Size	3" (80 mm)
Material	Carbon Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	800 GPM (3030 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	3" or 4" (80 or 100NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	3" BSP(M)
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handwheel
Finish	Red to RAL 3001
Weight (Approx)	45 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

Sl.No.	Description	Material Specification
1	Base Flange	ASTM A105
2	Pipe	ASTM A106 SCH40
3	Swivel Joint	Bronze/ASTM B62
4	Handle Wheel	Cast Iron
5	Worm Wheel	Bronze/ASTM B62
6	Worm Shaft	Stainless Steel
7	Elbow	ASTM A234 WPB SCH40
8	Barrel Pipe	ASTM A106 SCH40
9	Drain Valve	Brass

### \*NOTES:

- Monitor inlet flange standard size is 80 NB (3") to ANSI B16.5, 150#, other sizes 65NB (2.5") or 100NB (4") are optional.
- All dimensions in mm and are approximate.



# MONITOR

MODEL: NF-CSM450

## DESCRIPTION

The monitor is durable manual controlled low profile monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 800 GPM (3030 LPM).

The monitor has welded carbon steel 3" (80 mm) water way. All steel parts are hot dip galvanized and epoxy painted for excellent corrosion resistance. The vertical and horizontal rotation is through corrosion resistant bronze swiveling joints with double row of stainless steel ball bearing. Both vertical and horizontal movement are controlled with handwheel driven fully enclosed worm gears and protect from the elements.

The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting horizontal and vertical position of the monitor. The counter balance is not required to offset the weight of the nozzle. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable with fix stop from 90° above horizontal to 65° below horizontal.

The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is



ready for use. Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

## CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased / decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

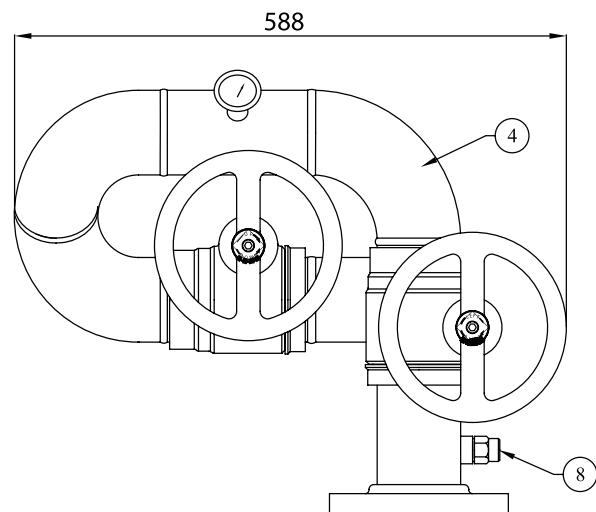
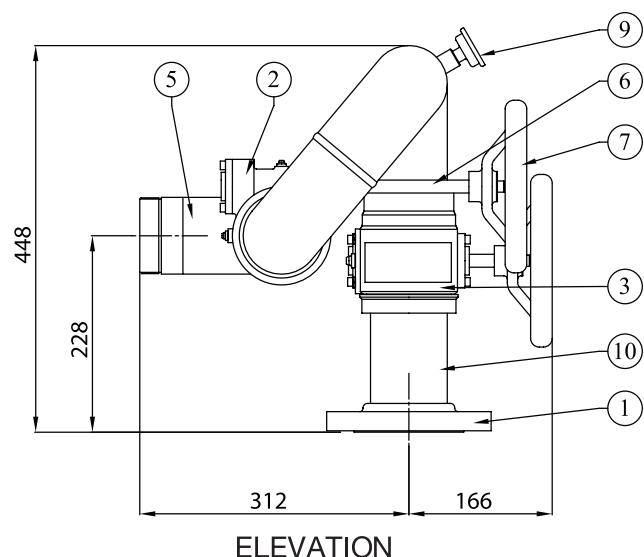
Nominal Size	3" (80 mm)
Material	Carbon Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	800 GPM (3030 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	3" or 4" (80 or 100NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	3" BSP(M)
Monitor Elevation	90° above horizontal & 635° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handwheel
Finish	Red to RAL 3001
Weight (Approx)	40 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

Sl.No.	Description	Material Specification
1	Base Flange	ASTM A105
2	Worm Wheel	Bronze/ASTM B62
3	Swivel Joint	Bronze/ASTM B62
4	Elbow	ASTM A234 WPB SCH40
5	Discharge Elbow	ASTM A234 WPB SCH40
6	Worm Shaft	Stainless Steel
7	Hand Wheel	Cast Iron
8	Drain Valve	Brass
9	Pressure Gauge	Glycerine Filled 0 to 16 kg/cm <sup>2</sup>
10	Inlet Pipe	ASTM A106 SCH40

### \*NOTES:

- Monitor inlet flange standard size is 80 NB (3") to ANSI B16.5, 150#, other sizes 100NB (4") or 150NB (6") are optional.
- All dimensions in mm and are approximate.
- Pressure Gauge is optional.



# MONITOR

MODEL: NF-CSM650

## DESCRIPTION

The monitor is durable manual controlled low profile monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 1250 GPM (4730 LPM).

The monitor has welded carbon steel 4" (100 mm) water way. All steel parts are hot dip galvanized and epoxy painted for excellent corrosion resistance. The vertical and horizontal rotation is through corrosion resistant bronze swiveling joint with double row of stainless steel ball bearing. Both vertical and horizontal movements are controlled with handwheel driven fully enclosed worm gears and protected from the elements.

The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and the vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable with fix stop from 90° above horizontal to 65° below horizontal.

The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the



monitor is ready for use. Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

## CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

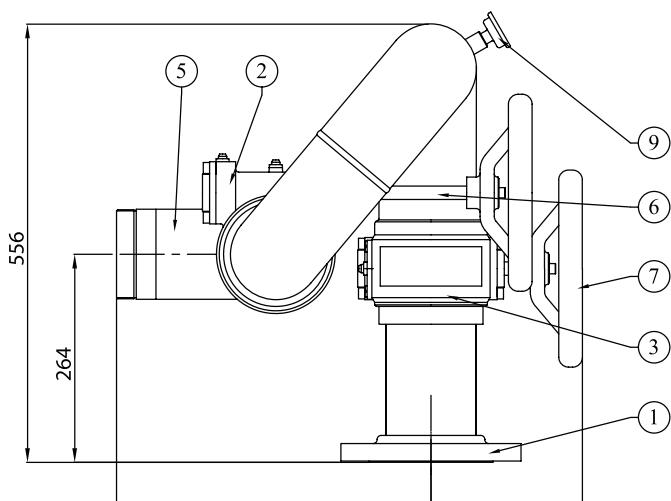
Nominal Size	4" (100 mm)
Material	Carbon Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	1250 GPM (4730 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	4" (100NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	4" BSP(M)
Monitor Elevation	90° above horizontal & 65° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handwheel
Finish	Red to RAL 3001
Weight (Approx)	74 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

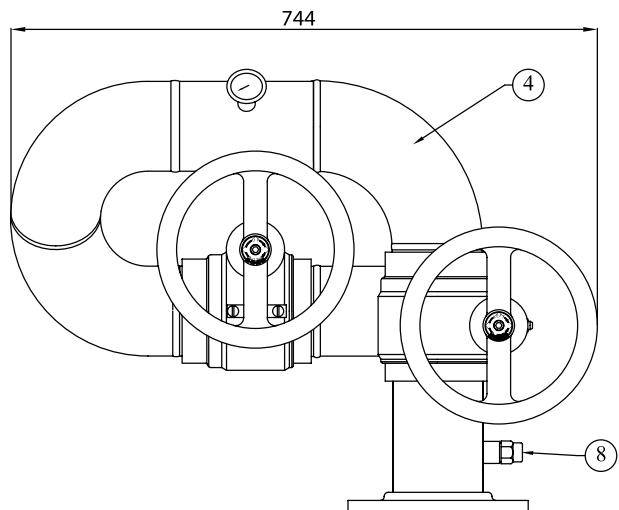
Sl.No.	Description	Material Specification
1	Base Flange	ASTM A105
2	Worm Wheel	Bronze/ASTM B62
3	Swivel Joint	Bronze/ASTM B62
4	Elbow	ASTM A234 WPB SCH40
5	Discharge Elbow	ASTM A234 WPB SCH40
6	Worm Shaft	Stainless Steel
7	Hand Wheel	Cast Iron
8	Drain Valve	Brass
9	Pressure Gauge	Glycerine Filled 0 to 16 kg/cm <sup>2</sup>

### \*NOTES:

- Monitor inlet flange standard size is 100 NB (4") to ANSI B16.5, 150#, other sizes 150NB (6") are optional.
- All dimensions in mm and are approximate.
- Pressure Gauge is optional.



ELEVATION



SIDE VIEW

# MONITOR

MODEL: NF-SSM250

## DESCRIPTION

Corrosion resistant stainless steel monitor is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 600 GPM (2270 LPM).

The monitor has welded stainless steel 2.5" (65 mm) water way. The vertical and horizontal rotation is through stainless steel swiveling joints with double row of stainless steel ball bearing. Both vertical and horizontal movements are controlled by handle with twist lock. The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and the vertical position of the monitor.

The counter balance is not required to offset the weight of the nozzle. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation from +90° above horizontal and 45° below horizontal. The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use. Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any



leakage. Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

## CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased /decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

Nominal Size	2.5" (65 mm)
Material	Stainless Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	600 GPM (2270 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	2.5", 3" or 4" (65, 80 or 100NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	2.5" BSP(M)
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handle with twist lock
Finish	Red to RAL 3001
Weight (Approx)	31 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

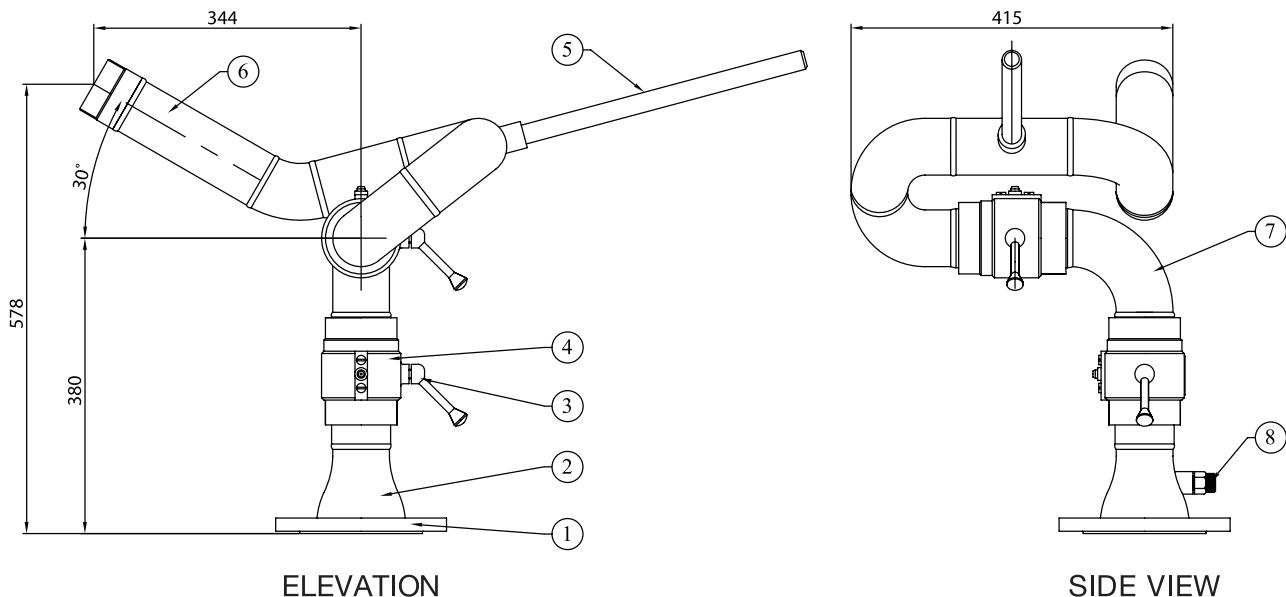
## PART LIST

Sl.No.	Description	Material Specification
1	Base Flange	Stainless Steel
2	Reducer	Stainless Steel
3	Lock	Stainless Steel
4	Swivel Joint	Stainless Steel
5	Handle	Stainless Steel
6	Barrel Pipe	Stainless Steel
7	Elbow	Stainless Steel
8	Drain Valve	Brass

### \*NOTES:

- Monitor inlet flange standard size is 65 NB (2.5") to ANSI B16.5, 150#, other sizes 80NB (3") or 100NB (4") are optional.

- All dimensions in mm and are approximate.



ELEVATION

SIDE VIEW

# MONITOR

MODEL: NF-SSM450

## DESCRIPTION

Corrosion resistant stainless steel monitor is durable manual controlled monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 800 GPM (3030 LPM). The monitor has welded stainless steel 3" (80 mm) waterway. The vertical and horizontal rotation is through corrosion resistant bronze swivel joints with double row of stainless steel ball bearing.

Both vertical and horizontal movements are controlled with hand wheel driven worm gears fully enclosed and protected from the elements. The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and the vertical position of the monitor. The counter balance is not required to offset the weight of the nozzle. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation from 90° above horizontal to 45° below horizontal.

The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle datasheet.

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.



Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

## CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased /decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

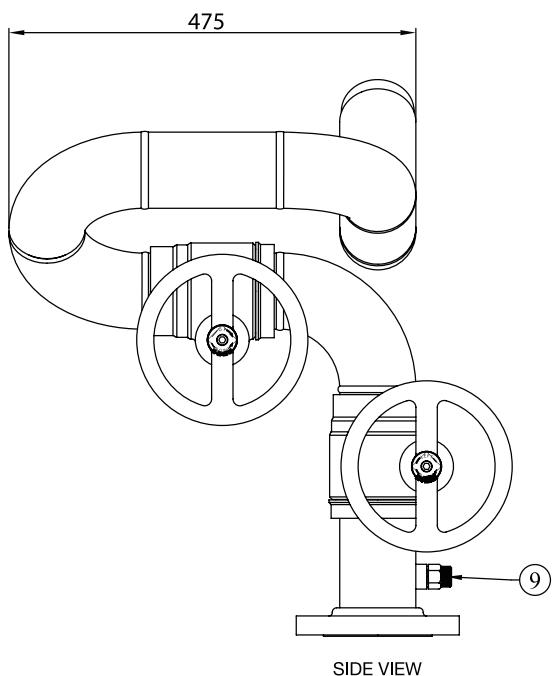
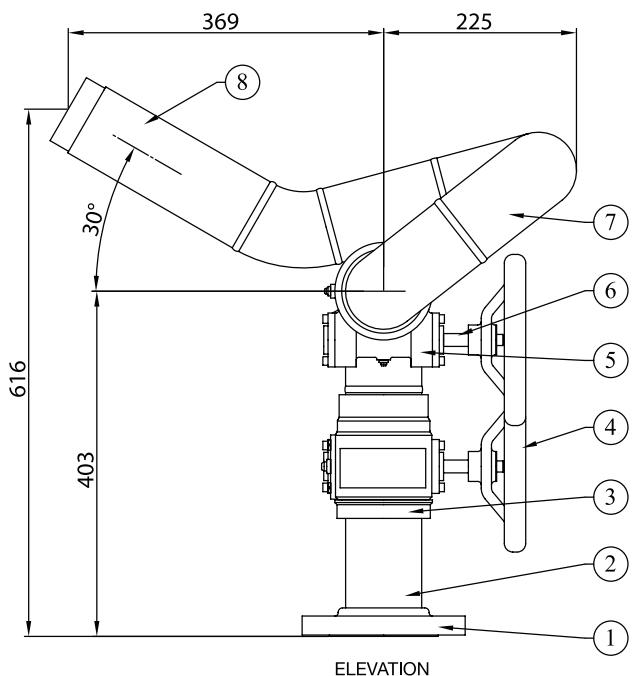
Nominal Size	3" (80 mm)
Material	Stainless Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	800 GPM (3030 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	3" or 4" (80 or 100NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	3" BSP(M)
Monitor Elevation	90° above horizontal & 45° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handwheel
Finish	Red to RAL 3001
Weight (Approx)	45 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

Sl.No.	Description	Material Specification
1	Base Flange	Stainless Steel
2	Inlet Pipe	Stainless Steel
3	Swivel Joint	Bronze
4	Hand Wheel	Cast Iron
5	Worm Wheel	Bronze
6	Worm Shaft	Stainless Steel
7	Elbow	Stainless Steel
8	Barrel Pipe	Stainless Steel
9	Drain Valve	Brass/Stainless Steel

### \*NOTES:

- Monitor inlet flange standard size is 80 NB (3") to ANSI B16.5, 150#, other sizes 100NB (4") or 150NB (6") are optional.
- All dimensions in mm and are approximate.



# MONITOR

MODEL: NF-SSM550

## DESCRIPTION

Corrosion resistant stainless steel monitor is durable manual controlled low profile monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 800 GPM (3030 LPM).

The monitor has welded stainless steel 3" (80 mm) waterway. The vertical and horizontal rotation is through bronze swiveling joints with double row of stainless steel ball bearing. Both vertical and horizontal movements are controlled with hand wheel driven fully enclosed worm gears and protected from the elements. The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and the vertical position of the monitor. The counter balance is not required to offset the weight of the nozzle. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation from 90° above horizontal to 65° below horizontal.

The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction, loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.



Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

## CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased/decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

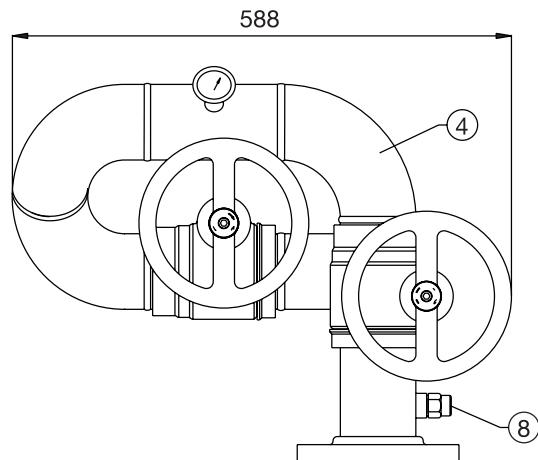
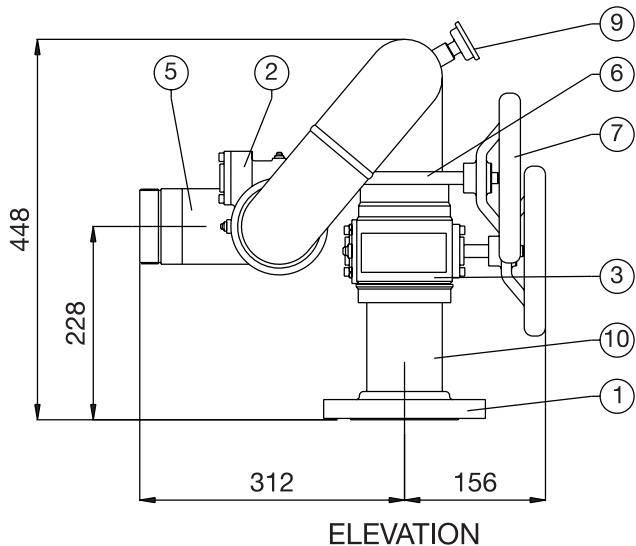
Nominal Size	3" (80 mm)
Material	Stainless Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	800 GPM (3030 LPM)
Factory Hydrostatic Test Pressure	35 bar (500 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	4" or 6" (100 or 150NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	3" BSP(M)
Monitor Elevation	90° above horizontal & 65° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handwheel
Finish	Red to RAL 3001
Weight (Approx)	42 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

Sl.No.	Description	Material Specification
1	Base Flange	Stainless Steel
2	Worm Wheel	Bronze
3	Swivel Joint	Bronze
4	Elbow	Stainless Steel
5	Discharge Elbow	Stainless Steel
6	Worm Shaft	Stainless Steel
7	Hand Wheel	Cast Iron
8	Drain Valve	Brass
9	Pressure Gauge	Glycerine Filled 0 to 16 kg/cm <sup>2</sup>
10	Inlet Pipe	Stainless Steel

### \*NOTES

- Monitor inlet flange standard size is 80 NB (3") to ANSI B16.5, 150#, other sizes 100NB (4") or 150NB (6") are optional.
- All dimensions in mm and are approximate.
- Pressure Gauge is optional.



# MONITOR

MODEL: NF-SSM650

## DESCRIPTION

Corrosion resistant stainless steel monitor is durable manual controlled low profile monitor for fixed installation as well as trailer mounted unit. The monitor is generally used for protection of flammable liquid storage tanks, loading racks, dykes marine and many other Industrial application.

The Monitor possess several design features that provides ease of operation, minimum maintenance and resistance to normally destructive environments. The monitor is used with aspirating, non-aspirating and water nozzles with flow range up to 3300 GPM (12500 LPM).

The monitor has welded stainless steel 6" (150 mm) waterway. The vertical and horizontal rotation is through bronze swiveling joints with double row of stainless steel ball bearing. Vertical and horizontal movements are controlled with hand wheel driven enclosed worm gear.

The monitor has large flow capability and can be manually operated by a single firefighter. The design ensures to prevent jet reaction forces from effecting the horizontal and the vertical position of the monitor. The monitor has the ability for 360° continuous horizontal rotation and angle of elevation is adjustable with fix stop from 90° above horizontal to 65° below horizontal. The water vanes in discharge tube reduces the turbulence and friction loss, thus increasing the nozzle performance to achieve greater range. To ensure desired performance, the friction loss through monitor must be considered while selecting the nozzle and the flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer monitor nozzle data sheet.

## INSTALLATION, TESTING & MAINTENANCE

The monitor must be installed and operated carefully by a trained person, having good knowledge of the equipment. Before assembly of the monitor to the supply piping, thoroughly flush the piping with water to avoid sand, residue, welding slag or other debris hindering the proper functioning of the monitor.

After few initial successful tests, an authorized person must be trained to perform the inspection and testing of the monitor.

The monitor should be ready for use. To achieve this condition, scheduled inspection and maintenance operation should be performed and it must be recorded in the maintenance register book indicating the requirement or recommendation. The recommended maintenance, procedure must be followed as given in the manual and also as per the local authority having jurisdiction.

It is recommended to carry out weekly physical inspection of the monitor. The inspection should verify that no damage has taken place to any component and the monitor is ready for use.



Carry out functional test every month for the flow, regular rotation in horizontal and vertical plane for the entire operating range to observe any leakage.

Periodic proper greasing through grease nipple provided on bearing, worm wheel and worm shaft must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation. Each monitor must be operated with the full flow in accordance to the guidelines of the organization having local jurisdiction. The owner is responsible for maintaining the equipment in proper operating condition.

## CAUTION

Trained personnel for firefighting must use the monitor. Appropriate guidance & training must be given to reduce the risk or injury.

The nozzle must be fixed to the monitor carefully. The flange bolts must be tightened uniformly. The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

When installing monitor it is very essential that flange bolts be tightened uniformly to prevent cocking of the monitor relative to the flange or valve. Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

Application of water or foam on an electric appliance can cause serious injury. The water supply to monitor must be increased / decreased gradually to prevent possible water hammer occurrence.

## TECHNICAL DATA

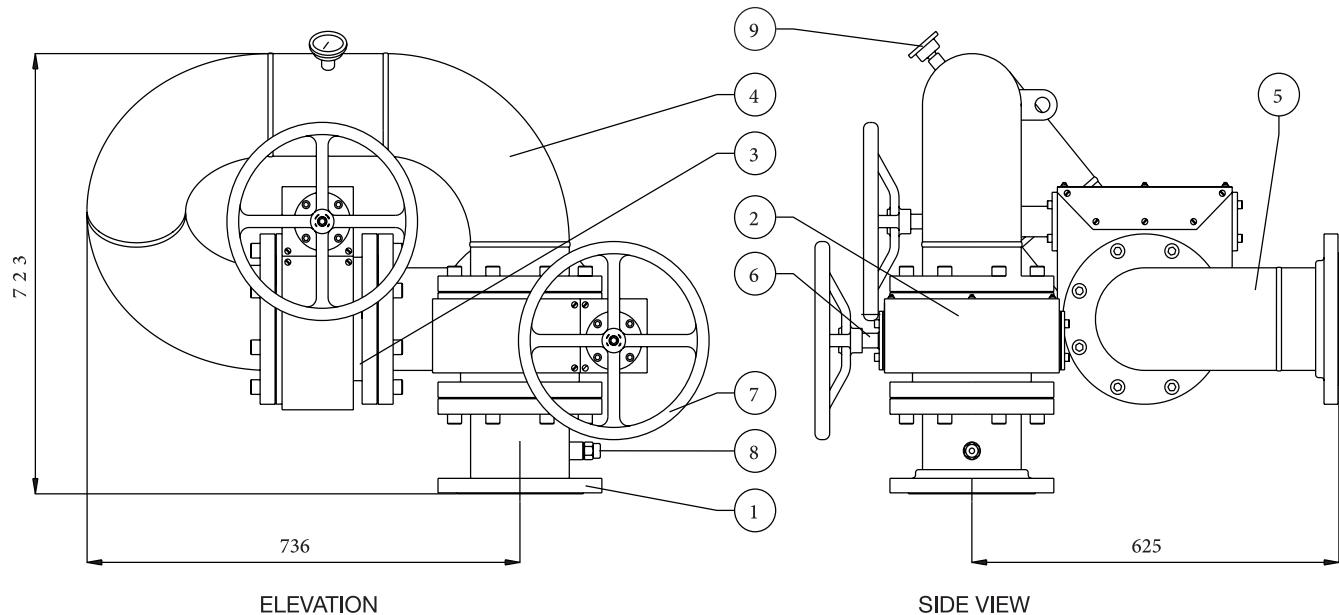
Nominal Size	6" (150 mm)
Material	Stainless Steel
Max. Service Pressure	175 psi (12 bar)
Max. Flow	3300 GPM (12500 LPM)
Factory Hydrostatic Test Pressure	27.6 bar (400 psi)
Swivel Joint	Bronze to ASTM B62 with double row of Stainless Steel Ball Bearing and Grease Fittings
Nozzle Thrust Reaction In kg.	Flow in LPM x $\sqrt{\text{Pressure in kg/cm}^2}$ x 0.0228
Inlet Connection	6" (150NB) Flange to ANSI B16.5 #150, R.F.
Outlet Connection	6" (150NB) Flange to ANSI B16.5 #150, R.F.
Monitor Elevation	90° above horizontal & 65° below horizontal
Monitor Rotation	360° continuous
Monitor Movement	Handwheel driven fully enclosed worm gear
Finish	Red to RAL 3001
Weight (Approx)	241 kg
Ordering Information	Specify Monitor Model and Inlet Flange Size

## PART LIST

Sl.No.	Description	Material Specification
1	Base Flange	Stainless Steel
2	Worm Wheel	Bronze
3	Swivel Joint	Bronze
4	Elbow	Stainless Steel Sch 40
5	Discharge Elbow	Stainless Steel Sch 40
6	Worm Shaft	Stainless Steel
7	Hand Wheel	Cast Iron
8	Drain Valve	Brass/Stainless Steel
9	Pressure Gauge	Glycerine Filled 0 to 16 kg/cm <sup>2</sup>

### \*NOTES

- Monitor inlet and outlet flange standard size is 150 NB (6") to ANSI B16.5, 150#.
- All dimensions in mm and are approximate.
- Pressure Gauge is optional.



# MONITOR

MODEL: NF-26N

## DESCRIPTION

It is designed to apply placing on outdoor hydrant, fire truck and etc. Constructed of bronze or Aluminum with hardened steel worm gears, rotating gears is fully enclosed for protection from the elements. 2½" single water way with cast-in vane. Double hand wheel control assures ease of operation and positive lock in any position. Vertical movement is 135° (90° above and 45° below horizontal) and horizontal movement is a full, continuous 360° (hand wheel remains stationary), grease zerk for easy lubrication.

## FEATURES

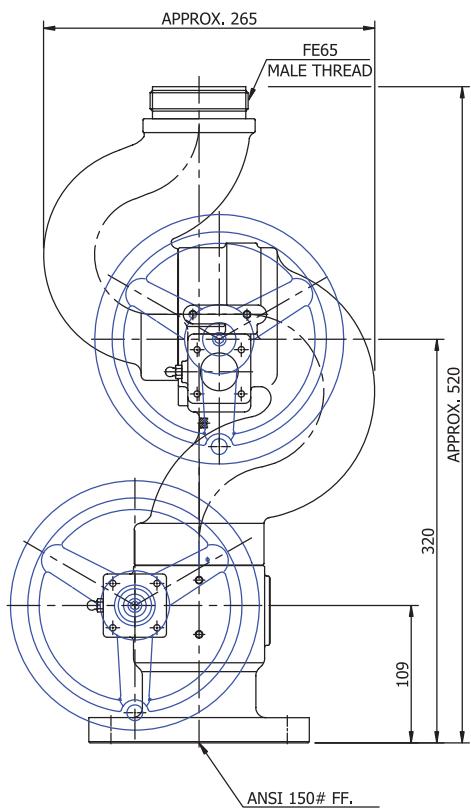
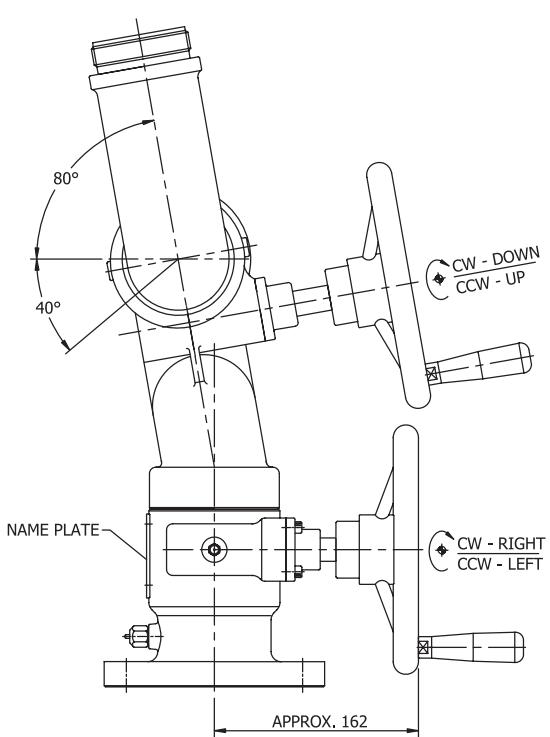
- Dual-gears manual operation
- 2½" Single Way Waterway

## APPLICATION

For total flooding applications, on the outdoor hydrant, fire trucks, mines, tunnels and etc.

## TECHNICAL DATA

Inlet	4" or 6" Flanged ANSI#150
Outlet	2½" or 3" NH male
Material	Bronze (ASTM C836)
Monitor Elevation	135° vertical movement
Monitor Rotation	Horizontal movement 360°
Net weight	36 kg approx.



*(THIS PAGE IS INTENTIONALLY LEFT BLANK)*

# MONITOR

MODEL: NF-23N

## DESCRIPTION

It is designed to apply placing on outdoor hydrant, fire truck and etc. Constructed of Aluminum light alloy body water way with cast-in vane assures ease of operation Vertical movement is 120° (80° above and 40° below horizontal) and horizontal movement is a full continuous 360°, with twist locking devices, grease fittings at all swivel joints for easy lubrication.

## FEATURES

- Lever operation

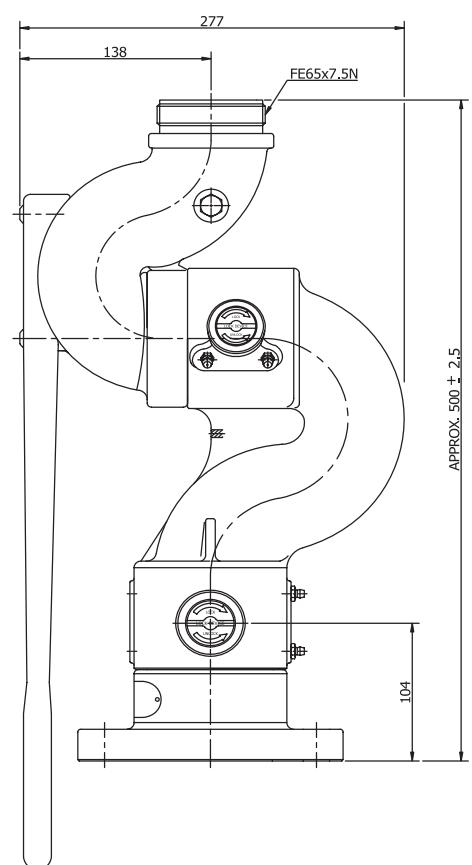
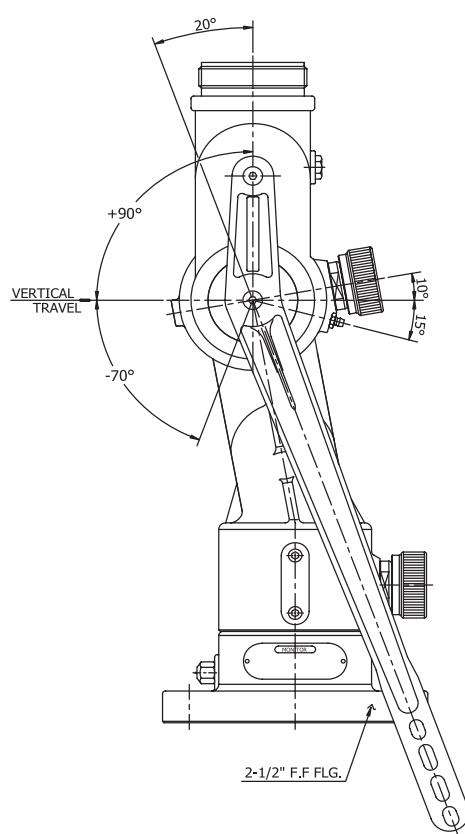
## APPLICATION

For total flooding applications, on the outdoor hydrant, fire trucks, mines, tunnels and etc.

## TECHNICAL DATA

Inlet	2½", 3", 4" Flanged ANSI#150
Outlet	2½" NH Male
Material	Aluminum alloy bronze Al-bronze
Monitor Elevation	120° vertical movement
Monitor Rotation	Horizontal movement 360°
Nozzle	
Model	NF-8SF
Inlet	2½" NH Female
Material	Aluminum
Length	430 mm

Tip Size	Flow Rate @ 7 bar
20 mm	690 LPM
23 mm	900 LPM
26 mm	1130 LPM
29 mm	1400 LPM
32 mm	1770 LPM
38 mm	2490 LPM
48 mm	4000 LPM



*(THIS PAGE IS INTENTIONALLY LEFT BLANK)*

# MONITOR

MODEL: NF-27A

## DESCRIPTION

It is designed to apply placing on outdoor hydrant, fire truck and etc. Constructed of Aluminum with hardened steel worm gears, fully enclosed gear cases for protection from the elements.

3.0" water way with cast-in vane. Double hand wheel control assures ease of operation and positive lock in any position. Vertical movement is 135° (90° above and 45° below horizontal) and horizontal movement is a full, continuous 360° (hand wheel remains stationary), grease zerk for easy lubrication.

## FEATURES

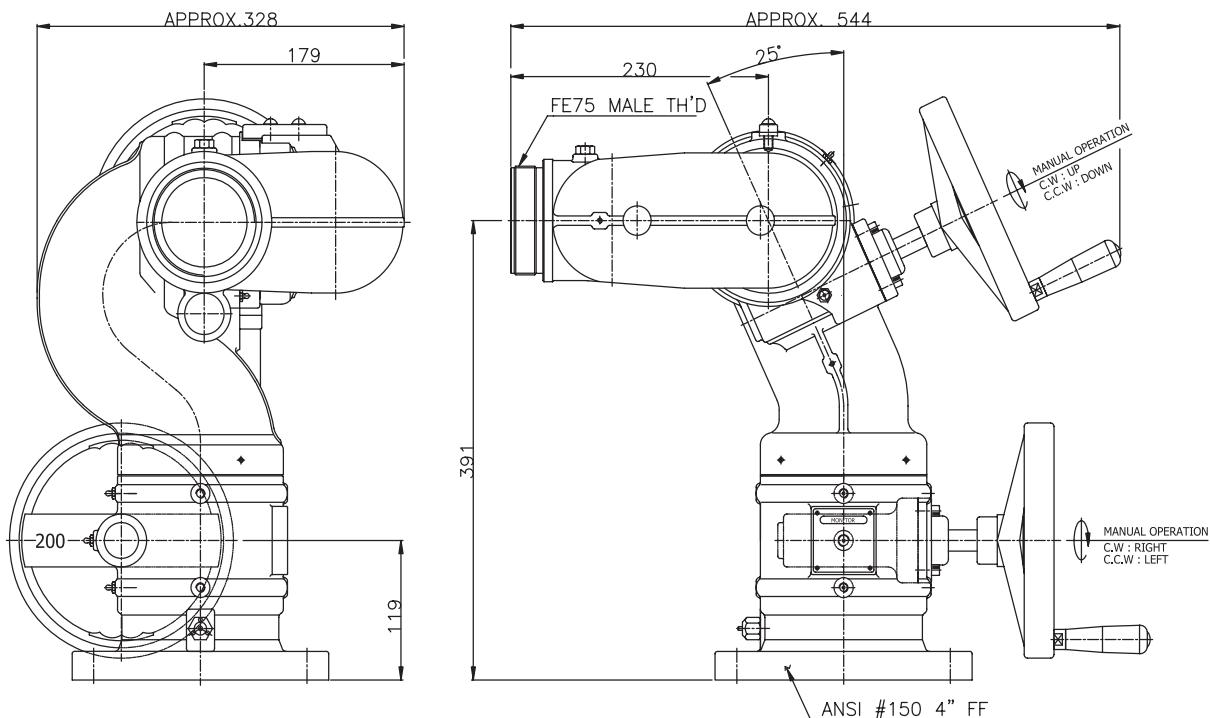
- Fully covered dual-gears manual operation for protection from the elements
- 3.0" single waterway
- With pressure check gauge

## APPLICATION

For total flooding applications, on the outdoor hydrant, fire trucks, mines, tunnels and etc.

## TECHNICAL DATA

Inlet	4" or 6" Flanged ANSI#150
Outlet	3" NH male
Material	Aluminum alloy (ASTM 355.0)/Bronze
Monitor Elevation	135° vertical movement
Monitor Rotation	Horizontal movement 360°
Net weight	26 kg approx.(Aluminum)



*(THIS PAGE IS INTENTIONALLY LEFT BLANK)*

# MONITOR

MODEL: NF-26HM

## DESCRIPTION

It is designed to apply placing on outdoor hydrant, fire truck and etc. Constructed of bronze or Aluminum with hardened steel worm gears, rotating gears is fully enclosed for protection from the elements. 2½" singlet water way with cast-in vane. Double hand wheel control assures ease of operation and positive lock in any position. Vertical movement is 135° (90° above and 45° below horizontal) and horizontal movement is a full, continuous 360° (hand wheel remains stationary), grease zerk for easy lubrication.

## FEATURES

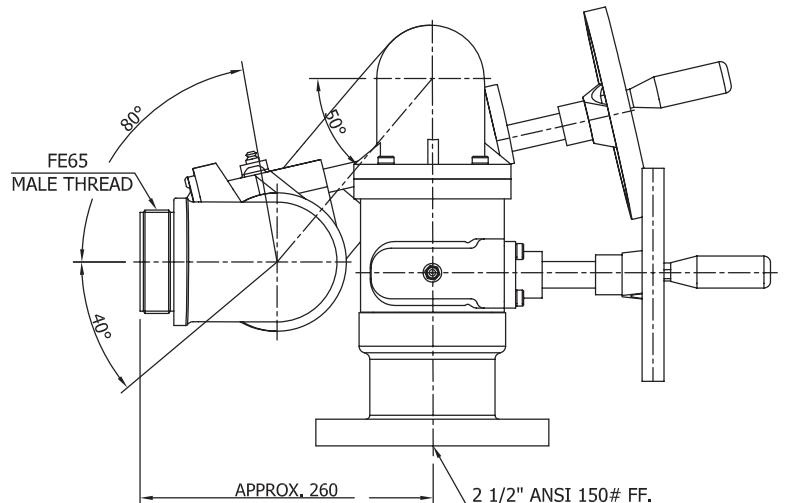
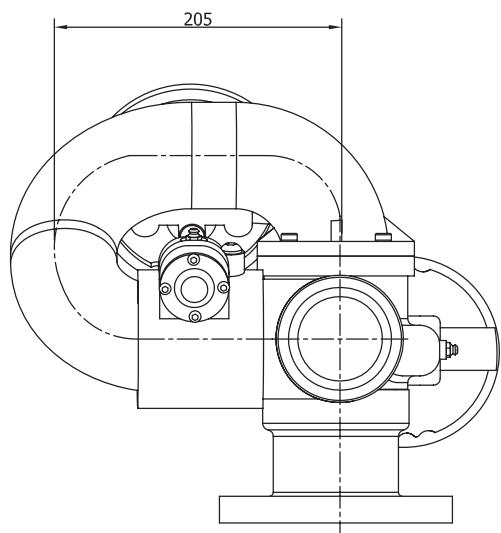
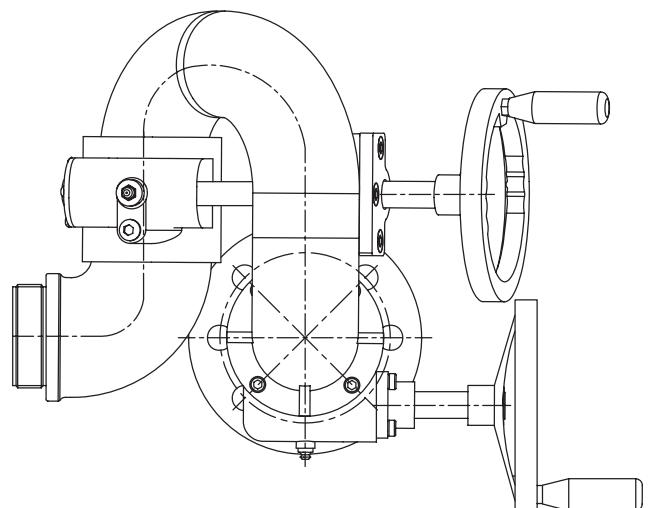
- Dual-gears manual operation
- 2½" Single Way Waterway

## APPLICATION

For total flooding applications, on the outdoor hydrant, fire trucks, mines, tunnels and etc.

## TECHNICAL DATA

Inlet	3" or 4" or 6" Flanged ANSI#150
Outlet	2½" NH male
Material	Bronze or Aluminum Alloy
Monitor Elevation	135° vertical movement
Monitor Rotation	Horizontal movement 360°
Net weight	36 kg approx.



*(THIS PAGE IS INTENTIONALLY LEFT BLANK)*

# MONITOR

MODEL: NM-23WJ

## DESCRIPTION

It is designed to apply placing on outdoor hydrant, fire truck and etc. Constructed of cast bronze with hardened steel worm gears, fully enclosed gear cases for protection from the elements.

2½" single water way with stainless steel 304 grade. One lever assures ease of operation vertical movement is 135° (90° above and 45° below horizontal) and horizontal movement is a full, continuous 360 (hand wheel remains stationary), and can stop any position with the positive locking mechanism. Grease zerk for easy lubrication.

## FEATURES

- Lever controls both of horizontal and vertical positive twist locking system
- Fully covered dual-gears manual operation for protection from the elements
- 2½" inside diameter stainless steel single waterway

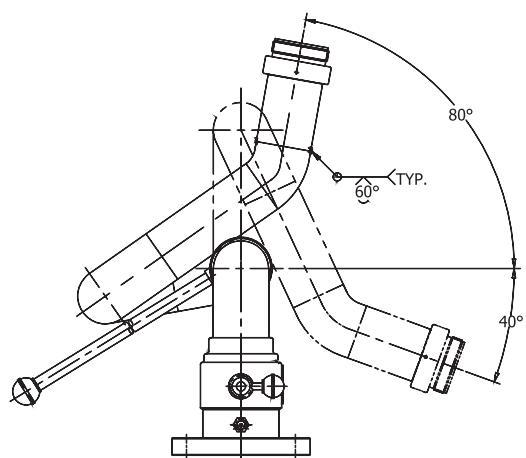
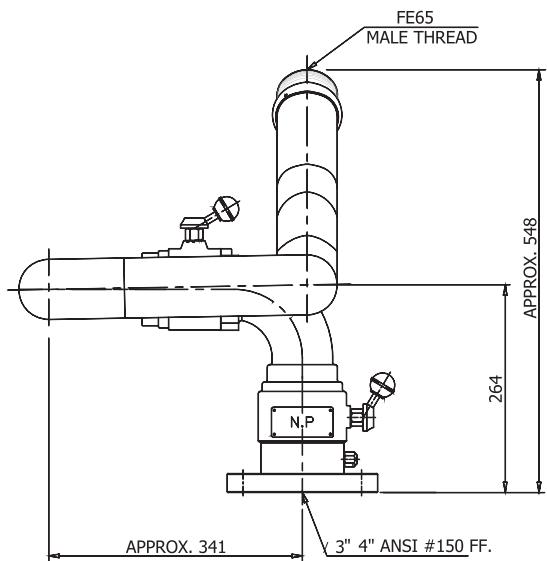
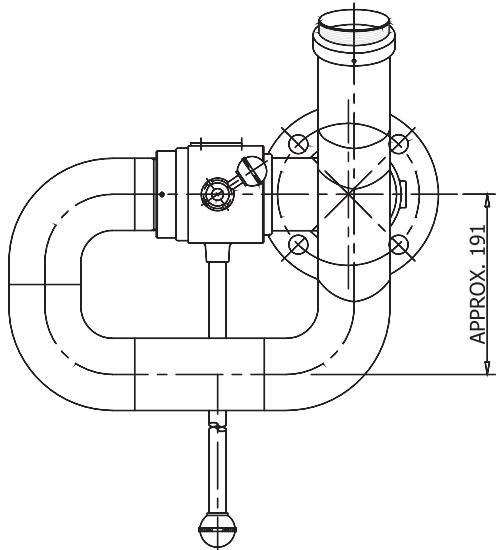


## APPLICATION

For total flooding applications, on the outdoor hydrant, fire trucks, mines, tunnels and etc.

## TECHNICAL DATA

Inlet	3" or 4" Flanged ANSI#150
Outlet	2½" NH male
Material	Cast bronze (ASTM c83600)
Monitor Elevation	135° vertical movement
Monitor Rotation	Horizontal movement 360°
Net weight	27 kg approx.
Pressure(Operating/ Design/Test)	15kgf/cm <sup>2</sup> /16.5kgf/cm <sup>2</sup> /20kgf/cm <sup>2</sup>



*(THIS PAGE IS INTENTIONALLY LEFT BLANK)*

# MONITOR

MODEL: NF-26A

## DESCRIPTION

It is designed to apply placing on outdoor hydrant, fire truck and etc. Constructed of aluminum, bronze or Cast iron with hardened steel worm gears, rotating gears is fully enclosed for protection from the elements. 2.0" dual water way with cast-in vane.

Double hand wheel control assures ease of operation and positive lock in any position. Vertical movement is 135° (85° above and 45° below horizontal) and horizontal movement is a full, continuous 360° (hand wheel remains stationary), grease zerk for easy lubrication.

## FEATURES

- Dual-gears manual operation
- 2½" Two Way Waterway

## APPLICATION

For total flooding applications, on the outdoor hydrant, fire trucks, mines, tunnels and etc.

## TECHNICAL DATA

Inlet	2½", 3", 4" Flange
Outlet	2½" NH male
Material	Bronze or Cast Iron or Aluminum
Monitor Elevation	135° vertical movement
Monitor Rotation	Horizontal movement 360°
Net weight	36 kg approx. based on bronze material

