

MONITOR - M 341

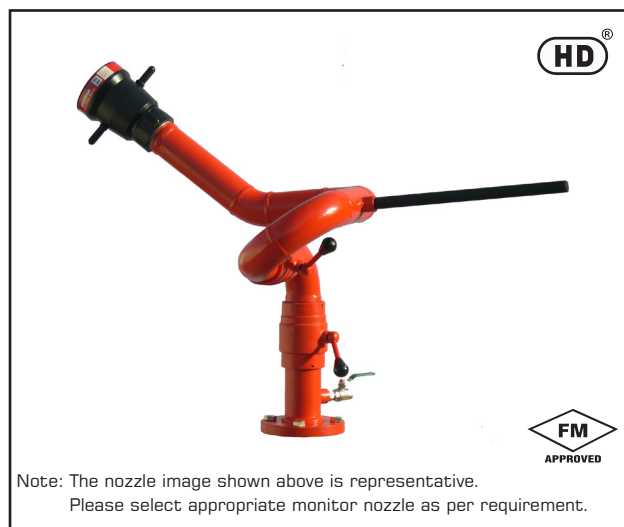
(STAINLESS STEEL)



**HD FIRE PROTECT
PVT. LTD.**

TECHNICAL DATA

MODEL	M 341
NOMINAL SIZE	3 Inch (80 MM)
MAX. SERVICE PRESSURE	175 PSI (12 Bar)
MAXIMUM 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 $\sqrt{\text{Pressure}}$ in Kg./sq.cm. X 0.0228
INLET CONNECTION	3" OR 4" (80 OR 100NB) Flange to ANSI B 16.5 # 150, R.F.
OUTLET CONNECTION	3" BSP (M)
MONITOR ELEVATION	90 Deg. above horizontal & 45 Deg. below horizontal
MONITOR ROTATION	360 Deg. continuous
MONITOR MOVEMENT	Handle with twist lock
FINISH	Red RAL 3001
WEIGHT (Approx)	36 Kg
ORDERING INFORMATION	Specify Monitor Model and Inlet Flange Size
APPROVAL	FM Approved



The monitor has large flow capability and can be manually operated by a single fire fighter. 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 deg. continuous horizontal rotation and angle of elevation from 90 deg. above horizontal and 45 deg. 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.

DESCRIPTION

Corrosion resistant stainless steel monitor Model-M 341 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 upto 800 GPM (3030 LPM).

The monitor has welded stainless steel 3 inch (80MM) 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.

INSTALLATION, TESTING AND 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 organisation 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 flange bolts must be tightened uniformly.

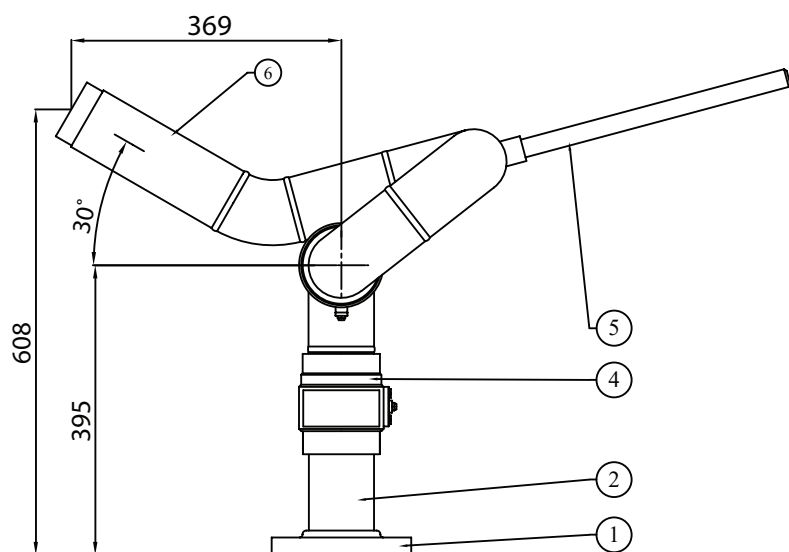
The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

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.

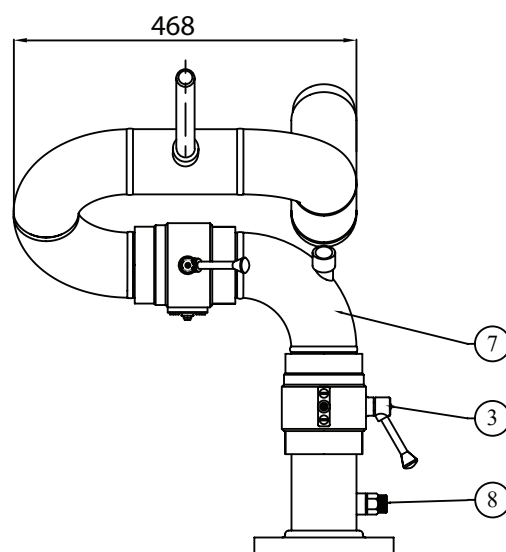
Before flowing water from monitor, check that all personnel are out of stream path and stream direction will not cause avoidable property damage.

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.



ELEVATION



SIDE VIEW

PART LIST

SR NO	DESCRIPTION	MATERIAL SPECIFICATION
1	BASE FLANGE	STAINLESS STEEL
2	REDUCER	STAINLESS STEEL
3	LOCK V & H	STAINLESS STEEL
4	SWIVEL JOINT	STAINLESS STEEL
5	HANDLE	STAINLESS STEEL
6	BARREL PIPE	STAINLESS STEEL
7	ELBOW	STAINLESS STEEL
8	DRAIN VALVE	BRASS

Note :

- 1) Monitor inlet flange standard size is 80 NB (3") to ANSI B16.5, 150#, other sizes 100 NB (4") or 150NB (6") are optional.
- 2) All dimensions in mm and are approximate.
- 3) Nozzle suitable to this Monitor is VARSHA 40

LIMITED WARRANTY

HD FIRE PROTECT PVT. LTD. hereby referred to as HD FIRE warrants to the original purchaser of the fire protection products manufactured by HD FIRE and to any other person to whom such equipment is transferred, that such products will be free from defect in material and workmanship under normal use and care, for two (2) years from the date of shipment by HD FIRE. Products or Components supplied or used by HD FIRE, but manufactured by others, are warranted only to the extent of the manufacturer's warranty. No warranty is given for product or components which have been subject to misuse, improper installation, corrosion, unauthorized repair, alteration or un-maintained. HD FIRE shall not be responsible for system design errors or improper installation or inaccurate or incomplete information supplied by buyer or buyer's representatives. HD FIRE will repair or replace defective material free of charge, which is returned to our factory, transportation charge prepaid, provided after our inspection the material is found to have been defective at the time of initial shipment from our works. HD FIRE shall not be liable for any incidental or consequential loss, damage or expense arising directly or indirectly from the use of the product including damages for injury to person, damages to property and penalties resulting from any products and components manufactured by HD FIRE. HD FIRE shall not be liable for any damages or labour charges or expense in making repair or adjustment to the product. HD FIRE shall not be liable for any damages or charges sustained in the adaptation or use of its engineering data & services. In no event shall HD Fire's product liability exceed an amount equal to the sale price. The foregoing warranty is exclusive and in lieu of all other warranties and representation whether expressed, implied, oral or written, including but not limited to, any implied warranties or merchantability or fitness for a particular purpose. All such other warranties and representations are hereby cancelled.

NOTICE :

The equipment presented in this bulletin is to be installed in accordance with the latest publication standards of NFPA or other similar organisations and also with the provision of government codes or ordinances wherever applicable.

The information provided by us is to the best of our knowledge and belief, and consist of general guidelines only. Site handling and installation control is not in our scope. Hence we give no guarantee for result and take no liability for damages, loss or penalties whatsoever, resulting from our suggestion, information, recommendation or damages due to our product.

Product development is a continuous programme of HD FIRE PROTECT PVT. LTD. and hence the right to modify any specification without prior notice is reserved with the company.

MONITOR - M - ISI MARKED

(CARBON STEEL, HOT DIP GALVANIZED)



TECHNICAL DATA

MODEL	M
MAXIMUM RATED	12 BAR (175 PSI)
NOMINAL WATERWAY SIZE	65mm, 80mm & 100mm
SPECIFICATION	Reference : IS:8442 - 1977
FLOW AT 7 Kg. / Sq.Cm PRESSURE	65 MM - 1750 LPM 80 MM - 2580 LPM 100 MM - 3500 LPM
FACTORY HYDROSTATIC TEST PRESSURE	25 Kg / Sq.Cm
NOZZLE THURST REACTION IN Kg.	Flow in LPM X $\sqrt{\text{Pressure}}$ in Kg./Sq.Cm. X 0.0228
INLET FLANGE SIZE	65 MM - 100 NB 80 MM - 100 NB 100 MM - 100 NB / 150 NB Flange dimension as per IS 6392-1971 Table 17 & 28
NOZZLE	Straight stream nozzle of Bronze or Aluminium material
MONITOR ELEVATION	90 Deg. above horizontal 45 Deg. below horizontal
ROTATION	360 Deg. continuous
WEIGHT (Approx)	65MM - 33 Kg 80MM - 40 Kg 100MM - 69 Kg
FINISH	Fire Red Shade 536 of IS: 5-1961 painted from outside
ORDERING INFORMATION	Specify Monitor Model, Size and Inlet Flange Size
APPROVAL	ISI marked



The monitor has welded carbon steel water way. All steel parts are hot dip galvanized and 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 handle with twist lock.

The monitor has large flow capability 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 deg. continuous horizontal rotation and angle of elevation is adjustable with fix stop from +90 deg. above horizontal to -45 deg. 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 flow through the monitor with reference to available base pressure at inlet of the monitor. For flow and jet reach data refer table.

DESCRIPTION

The Monitor Model - M is durable manual controlled monitor for fixed installation as well as for 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 fitted with solid bore straight stream nozzle.

INSTALLATION, TESTING AND 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 organisation 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. Do not over tighten the nozzle to the monitor. 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.

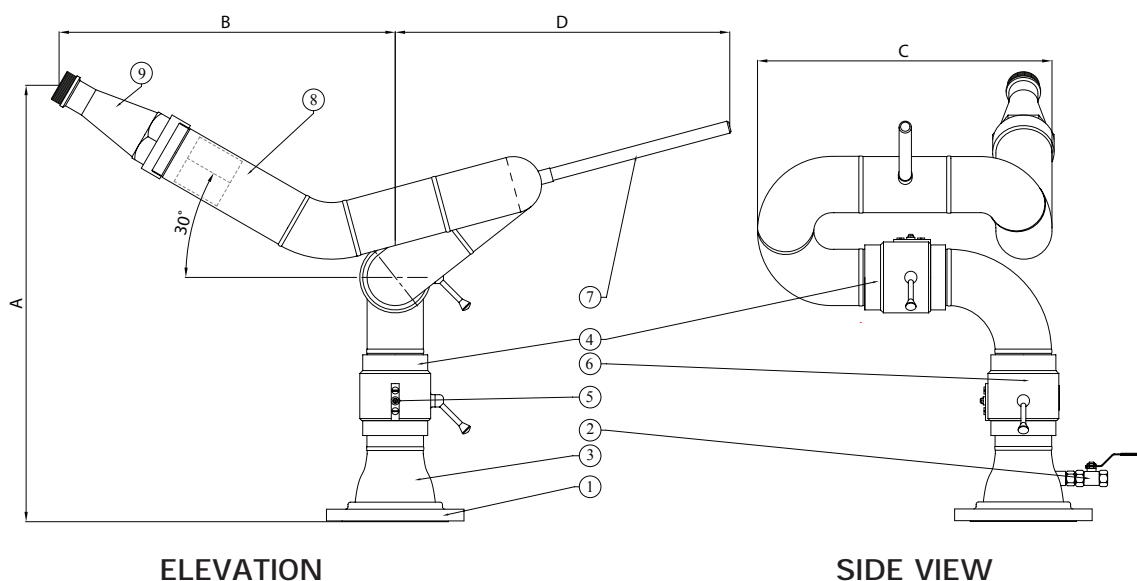
When installing monitor it is very essential that flange bolts are tightened uniformly to prevent cocking of the monitor relative to the flange or valve.

Before flowing water from monitor, check that all personnel are out of stream path and the 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.

Do not exceed the maximum pressure or flow rating of the monitor. Exceeding the pressure or flow rating may cause injury or damage to the monitor.

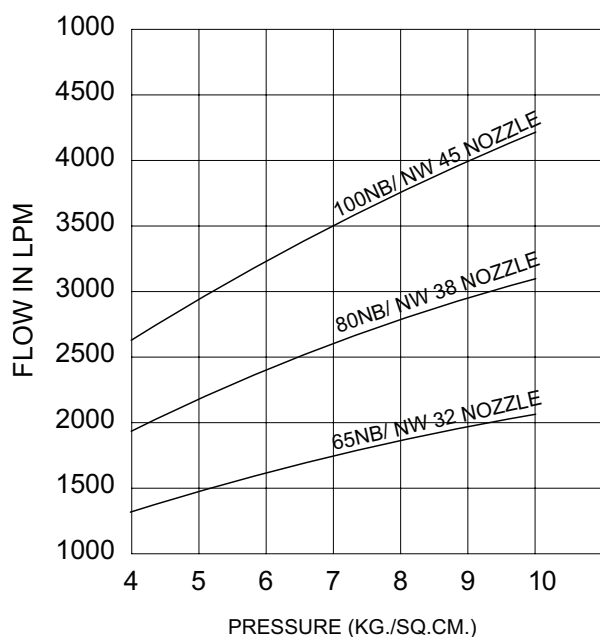

ELEVATION
SIDE VIEW

PART LIST

DIMENSION in millimeter (Approximate)

SIZE	A	B	C	D
65 NB	677	515	415	570
80 NB	720	560	470	620
100 NB	890	685	600	690

ITEM NO	QTY.	DESCRIPTION
1	1	BASE FLANGE
2	1	DRAIN VALVE
3	1	REDUCER
4	2	SWIVEL JOINT
5	4	GREASE NIPPLE
6	2	LOCK NUT
7	1	HANDLE
8	1	WATER BARREL
9	1	NOZZLE



HORIZONTAL STRAIGHT STREAM

MONITOR SIZE	NOZZLE MODEL	FLOW IN LPM	WATER JET IN MTRS.
65	NW 32	1750	53
80	NW 38	2580	60
100	NW 45	3500	64

Note:

Horizontal straight stream range is in still air with nozzle elevation at 30° to inlet flange at 1 to 1.5 meters above ground level and at 7 Kg./Sq.cm. monitor inlet pressure.

LIMITED WARRANTY

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Product development is a continuous programme of HD FIRE PROTECT PVT. LTD. and hence the right to modify any specification without prior notice is reserved with the company.



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FOAM MONITOR VARUN 443

WITH OR WITHOUT JRC, STAINLESS STEEL
VARIABLE & FIX FLOW 500-750-1000 GPM



TECHNICAL DATA

MONITOR MODEL	VARUN 443
NOMINAL SIZE	4 in (100 mm)
MAX. SERVICE PRESSURE	175 psi (12 bar)
NOZZLE MODEL	Refer Table-I
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 $\sqrt{\text{Pressure}}$ in kg/sq.cm x 0.0228
INLET CONNECTION	4" or 6" (100 or 150 NB) Flange to ANSI B16.5#150 RF
END CONNECTION	4" BSP for Monitor Nozzle Connection
PICKUP TUBE	3.0 mtrs. Long Clear PVC with SS Dip Tube
MONITOR ELEVATION	90 deg. Above Horizontal & 65 deg. Below Horizontal
MONITOR ROTATION	360 deg. Continuous
MONITOR MOVEMENT	Double Hand Wheel Driven Enclosed Worm Gear
APPROVAL	UL Listed
FINISH	Standard Supply - Red RAL 3001 Optional -As per Customer Requirement
MONITOR WEIGHT	With H4 Nozzle - 77.5 Kg With H4V Nozzle - 79.5 Kg With H4VJ Nozzle - 79.0 Kg
ORDERING INFORMATION	Refer Ordering Information Chart

DESCRIPTION

Corrosion resistant Stainless Steel Monitor Model VARUN 443 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 VARUN 443 Monitor possesses several design features that provide 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 inch (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 movements are 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 deg. continuous horizontal rotation and angle of elevation is adjustable from 90 deg. above horizontal to 65 deg. 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

- In case of Variable Flow Nozzle Model H4V, 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.
- To change spray angle, rotate the pattern sleeve clockwise for straight stream or anticlockwise to spray / fog pattern.
- When JRC is to be used, the induction setting to be positioned on metering valve at JRC.

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.

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

Each monitor must be operated with full flow in accordance to the guidelines of the organisation 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 flange bolts must be tightened uniformly.

The piping must be able to with stand 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 electrical 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.

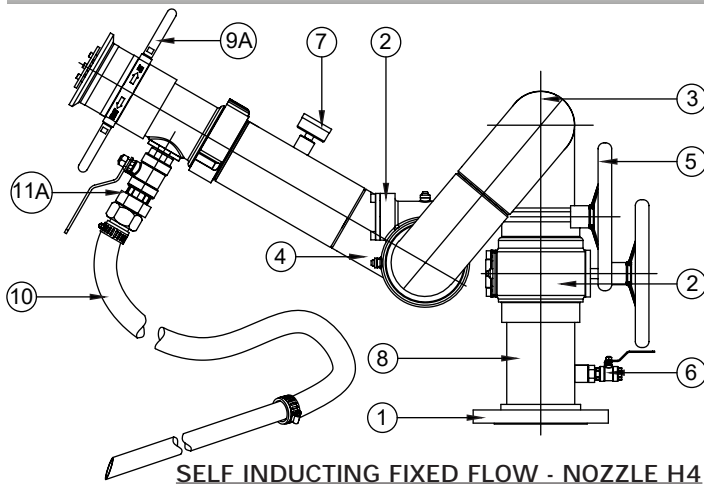
Maximum permissible suction lift is 2.5 meters for self-inducting nozzle.

The elevation difference between monitor and JRC shall not be more than 1.5 meters.

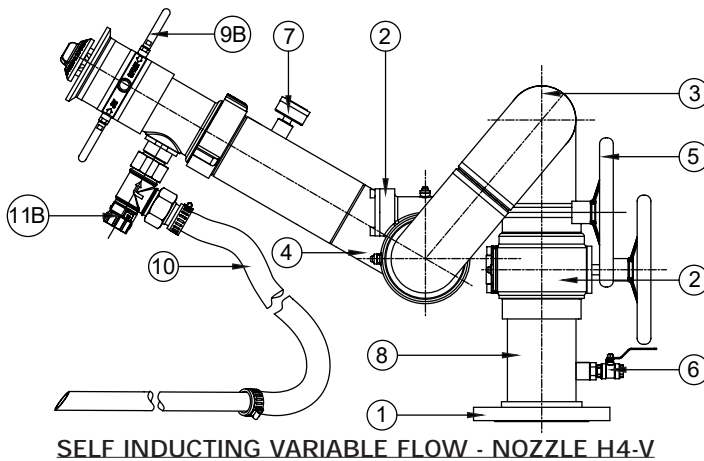
TABLE - I

SER. NO.	NOZZLE MODEL	FLOW AT 7 KG/SQ.CM. MONITOR BASE PRESSURE	SELF INDUCTING	PREMIX FOAM SOLUTION	INDUCTION BY JRC
1	VARSHA H4-500	FIX FLOW	YES	YES	NO
2	VARSHA H4-750	FIX FLOW	YES	YES	NO
3	VARSHA H4-1000	FIX FLOW	YES	YES	NO
4	VARSHA H4-V 500-750-1000	VARIABLE FLOW	YES	YES	NO
5	VARSHA H4-V 500-1000	VARIABLE FLOW	YES	YES	NO
6	VARSHA H4-V 750-1000	VARIABLE FLOW	YES	YES	NO
7	VARSHA H4-V 500-750	VARIABLE FLOW	YES	YES	NO
8	VARSHA H4-VJ 500	FIX FLOW	NO	YES	YES
9	VARSHA H4-VJ 750	FIX FLOW	NO	YES	YES
10	VARSHA H4-VJ 1000	FIX FLOW	NO	YES	YES
11	VARSHA H4-VJ 500-750-1000	VARIABLE FLOW	NO	YES	YES
12	VARSHA H4-VJ 500-1000	VARIABLE FLOW	NO	YES	YES
13	VARSHA H4-VJ 750-1000	VARIABLE FLOW	NO	YES	YES
14	VARSHA H4-VJ 500-750	VARIABLE FLOW	NO	YES	YES

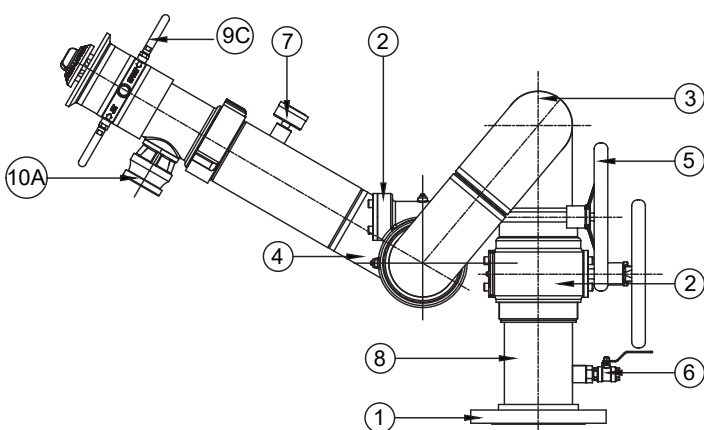
WATER FOAM MONITOR VARUN 443 WITH NOZZLE H4, H4-V, H4-VJ



SELF INDUCING FIXED FLOW - NOZZLE H4



SELF INDUCING VARIABLE FLOW - NOZZLE H4-V



VARIABLE FLOW INDUCTION WITH JRC - NOZZLE H4-VJ

Note :

- 1) Monitor inlet flange standard size is 100NB (4") to ANSI B16.5, 150#, Other optional size is 150NB (6")
- 2) Flow is within $\pm 5\%$
- 3) Standard Supply - SS304/ASTM A-351-CF8
Optional Supply - A) SS316/ASTM A-351-CF8M B) SS316L/ASTM A-351-CF3M
- 4) Foam reach data is in still air at 30/35° Nozzle elevation
- 5) Foam concentrate induction is 3 to 3.9% as per UL requirement

PART LIST

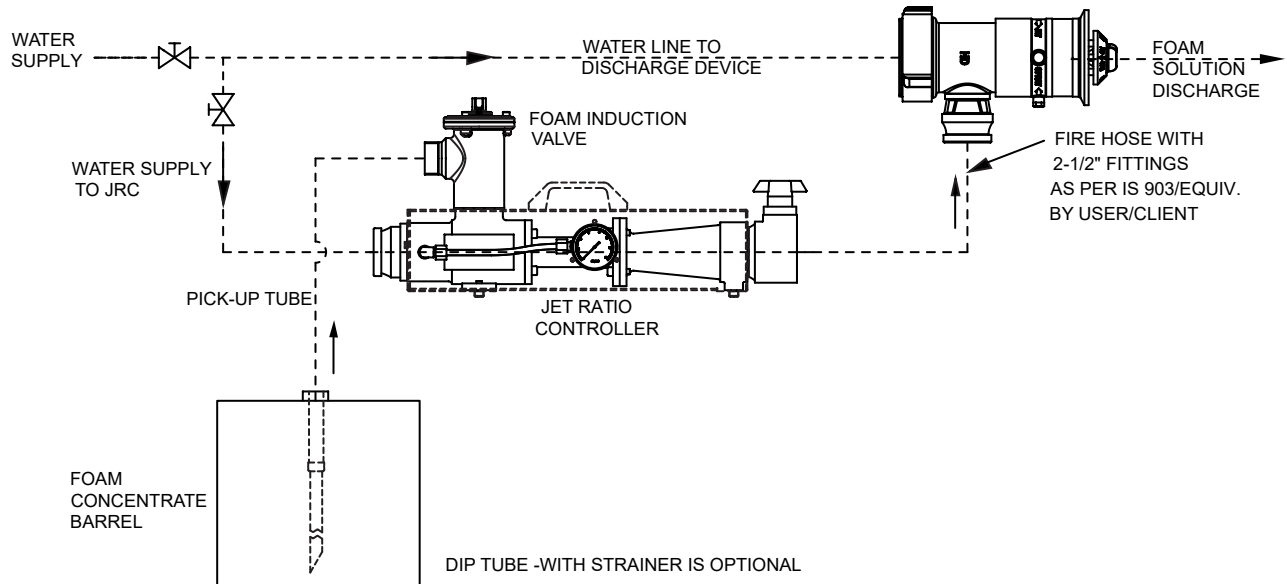
ITEM NO.	DESCRIPTION	MATERIAL SPECIFICATION
1	BASE FLANGE	ASTM-A240 SS316
2	SWIVEL JOINT V & H ROTATION	ASTM-A351 CF8M
3	ELBOW	ASTM-SA403-WP316
4	DISCHARGE ELBOW	ASTM-SA403-WP316
5	HAND WHEEL	ASTM-A351 CF8M
6	DRAIN VALVE 1/2"	STAINLESS STEEL
7	PRESSURE GAUGE (OPTIONAL)	0 TO 16 KG/SQ.CM.
8	INLET PIPE	ASTM-A312 TP316
9A OR 9B OR 9C	NOZZLE - VARSHA H4 NOZZLE - VARSHA H4-V NOZZLE - VARSHA H4-VJ	ASTM-A351 CF8M
10	PICKUP TUBE	PVC
10A	COUPLING WITH CONNECTOR	ASTM-A351 CF8M
11A OR 11B	ISOLATION VALVE (OPTIONAL) INDUCTION METERING VALVE	STAINLESS STEEL ASTM-A351 CF8M

FOAM REACH DATA

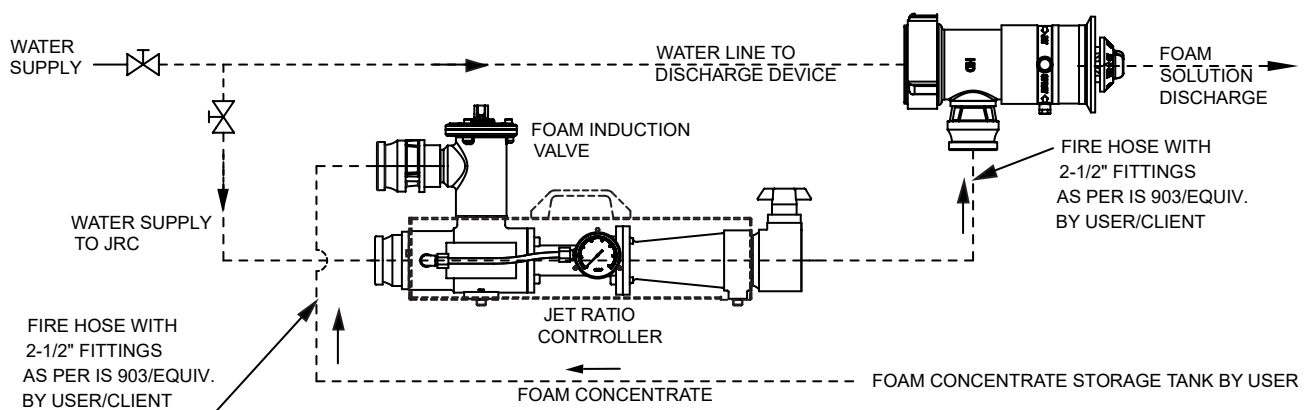
Set Flow Rate GPM	Concentrate Induction Rate in %	Monitor Base Pressure in kg/sq.cm	Reach in Still Air (in metres)	
			Water	Foam
500	3	7	50	45
750	3	7	60	55
1000	3	7	65	60

JET RATIO CONTROLLER - JRC

FOAM INDUCTION USING PICKUP TUBE



FOAM INDUCTION USING FIRE HOSE WITH FOAM CONCENTRATE STORAGE TANK

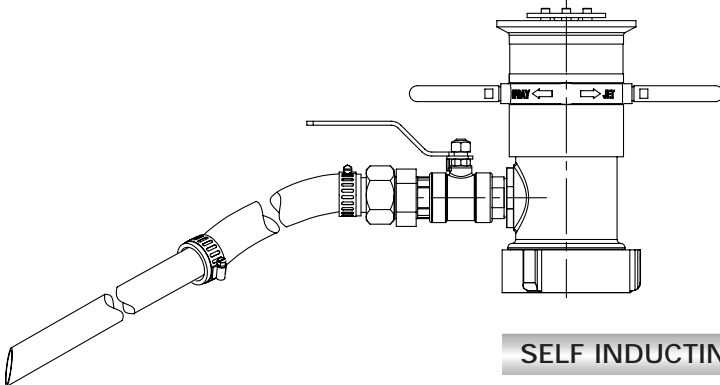


NOTE:

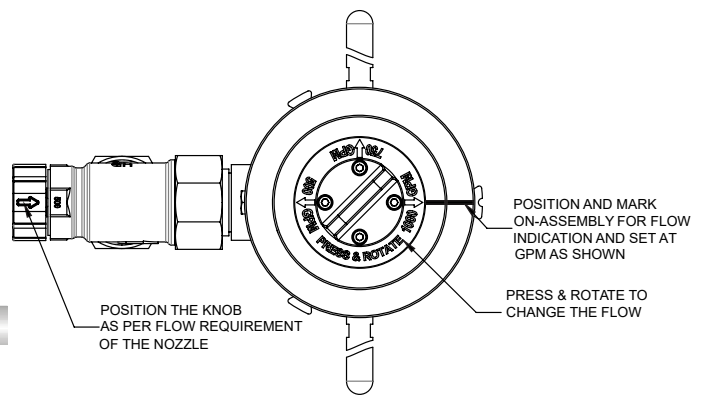
FOAM INDUCTION VALVE (ONLY WITH VARIABLE FLOW)

⌵ - VALVE - - - - BY USER

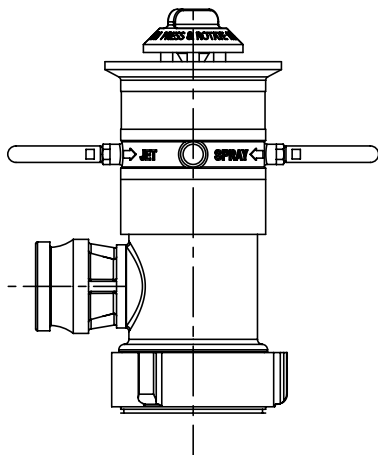
FIX FLOW FOAM NOZZLE - H4



SELF INDUCTING VARIABLE FLOW FOAM NOZZLE - H4-V



NOZZLE - H4-VJ

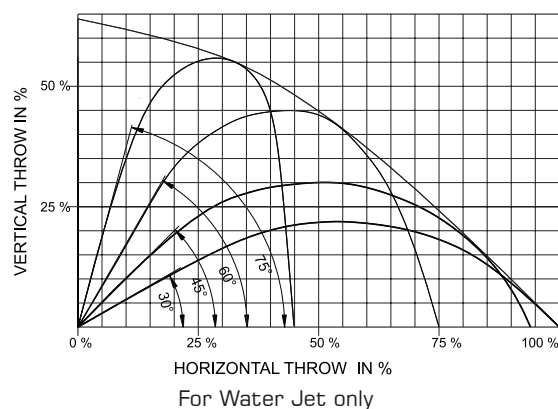


NOTE:

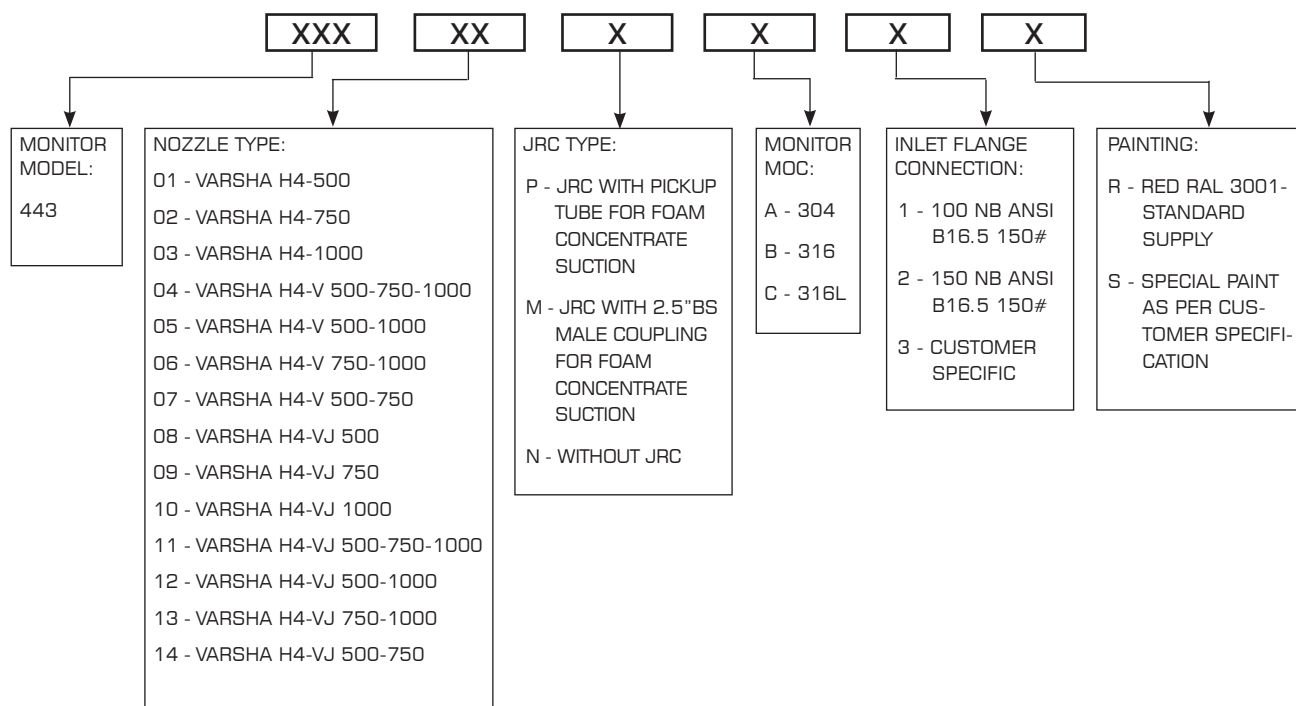
For more information on Nozzles, refer product catalogue HD 319

FLOW REACH DATA

STREAM TRAJECTORY
CROSS REF. IN % - JET REACH & HEIGHT



ORDERING INFORMATION



LIMITED WARRANTY

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The information provided by us is to the best of our knowledge and belief, and consist of general guidelines only. Site handling and installation control is not in our scope. Hence we give no guarantee for result and take no liability for damages, loss or penalties whatsoever, resulting from our suggestion, information, recommendation or damages due to our product.

Product development is a continuous programme of HD FIRE PROTECT PVT. LTD. and hence the right to modify any specification without prior notice is reserved with the company.



HD FIRE PROTECT PVT. LTD.
Protecting What Matters Most to You

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MONITOR - VARUN 613

(CARBON STEEL, HOT DIP GALVANIZED)



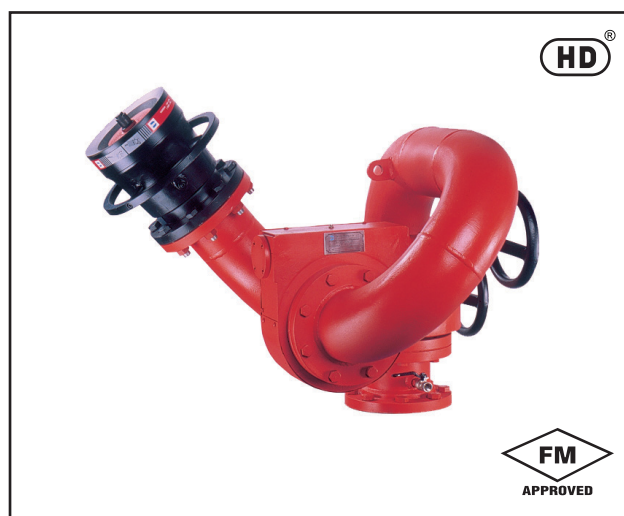
TECHNICAL DATA

MODEL	VARUN 613
NOMINAL SIZE	6 Inch (150 NB)
MAX. SERVICE PRESSURE	175 PSI (12 Bar)
MAXIMUM FLOW	3300 GPM (12500 LPM)
FACTORY HYDROSTATIC TEST PRESSURE	400 PSI (27.6 Bar)
SWIVEL JOINT	Bronze to IS 318 / 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./sq.cm. X 0.0228
INLET CONNECTION	6 Inch (150 MM) Flange to ANSI B16.5 #150, R.F.
OUTLET CONNECTION	6 Inch (150 MM) Flange to ANSI B16.5 #150, R.F.
MONITOR ELEVATION	90 Deg. above horizontal & 65 Deg. below horizontal
MONITOR ROTATION	360 Deg. continuous
MONITOR MOVEMENT	Hand wheel driven worm gear fully enclosed
FINISH	Red RAL 3001
WEIGHT (Approx)	224 Kg
ORDERING INFORMATION	Specify Monitor Model
APPROVAL	FM Approved for 1500, 1750, 2000, 2100 & 2200 GPM

DESCRIPTION

The monitor Model- VARUN 613 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 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 upto 3300 GPM (12500 LPM).



The monitor has welded carbon steel 6 inch (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 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 fire fighter. 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 deg. continuous horizontal rotation and angle of elevation is adjustable with fix stop from +90 deg. above horizontal to -65 deg. 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 AND 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 the full flow in accordance to the guidelines of the organisation 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 flange bolts must be tightened uniformly.

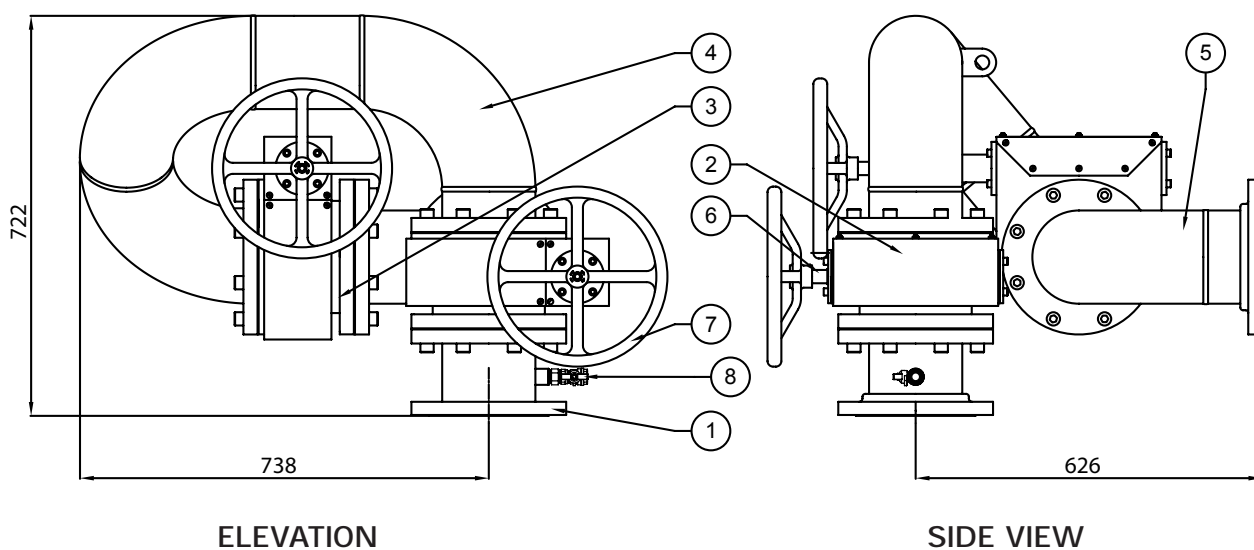
The piping must be able to withstand the horizontal reaction force. Serious injury to personnel and equipment can result from improper installation.

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.



PART LIST

ITEM NO	DESCRIPTION	MATERIAL SPECIFICATION
1	BASE FLANGE	ASTM A 105
2	WORM WHEEL	BRONZE IS:318 / ASTM B62
3	SWIVEL JOINT V. & H. ROTATION	BRONZE IS:318 / ASTM B62
4	ELBOW	ASTM A 234 WPB SCH40
5	DISCHARGE ELBOW	ASTM A 234 WPB SCH40
6	WORM SHAFT	STAINLESS STEEL
7	HAND WHEEL	CAST IRON
8	BALL VALVE	BRASS

Note :

- 1) Monitor inlet and outlet flange standard size is 150 NB (6") to ANSI B16.5, 150#.
- 2) All dimensions in mm and are approximate.
- 3) Use VARSHA 60 FM Approved NOZZLE with this Monitor
- 4) As the Monitor is hot dip galvanized, flange will be RF without serration.
- 5) Pressure Gauge is optional supply.

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