WATER POWERED OSCILLATING MONITOR

HD FIRE PROTECT PVT. LTD.

TECHNICAL DATA

MODEL	VAJRA 331-S
FLOW	With VARSHA 40U – 500 or 750 or 1000 GPM. With VARSHA HF40U – 500 or 750 GPM (self-inducting).
MINIMUM & MAXIMUM OPERATING PRESSURE	3.5 TO 12 Bar (50 to 175 PSI)
FACTORY HYDROTESTED	25 Bar (350 PSI)
SWIVEL JOINT	Bronze to IS:318/ ASTM B62 With double row of stainless steel Ball Bearing & Grease fittings
INLET CONNECTION	100 NB (4") ANSI B16.5 Class 150#,Flat Face flanged
MONITOR ELEVATION	+80 Deg. above and (-)40 Deg. below horizontal
OSCILLATION GEAR BOX	Stainless Steel, double reduction, oil bath gear box
PELTON WHEEL	Stainless Steel
OSCILLATION LINKS	Stainless Steel
ENCLOSURE	Stainless Steel
PELTON WHEEL FEEDER TRIM	Bronze Valve, Copper tubing & DI fittings
OSCILLATION SPEED	Adjustable from 0° – 30°/sec. at 7 Bar pressure (100 PSI)
SPEED CONTROL	By Brass Valve externally accessible
ARC OF OSCILLATION	Adjustable 0° to 120° with six set points.
TEST CONNECTION	½" Garden Hose (½" BSP F)
FINISH	Red, RAL 3001
APPROVAL	UL Listed
WEIGHT	67 Kgs.
ORDERING INFORMATION	Specify Flow & Nozzle model. Pressure Gauge is optional supply

DESCRIPTION

Monitor mounted on Water Powered Oscillating Unit, transforms the manual monitor into an oscillating monitor. The unit is suitable for use in high risk areas such as tank farm facilities, aircraft hangars, offshore, refineries, chemical plants, and heliports.

The monitor possesses several design features that provides ease of operation, minimum maintenance and resistance to corrosive environments. The monitor is used with Nozzle as premix solution with flow upto 1000 GPM. The monitor can be used with water-foam self-inducting nozzle having flow up to 750 GPM.

The monitor has cast bronze 3 inch (75 MM) water way. Vertical & horizontal rotation is through corrosion resistant bronze swiveling joint with double row of stainless steel ball bearing. Both vertical & horizontal movement is controlled by handle with twist lock.

A water drive wheel is connected to a double reduction gearbox drive and oscillating mechanism. To operate the drive wheel, a small quantity of flow is diverted from the monitor inlet.

The monitor requires no external wiring or hydraulic control for operation. The minimum operating water pressure of the oscillation mechanism is 3.5 kg./sq.cm. The flow of water through oscillation mechanism is 42 LPM at 3.5 kg./sq.cm. and 60 LPM at 7 kg./sq.cm. of water pressure.

The design ensures to prevent jet reaction forces from affecting the horizontal and vertical position of the monitor during operation.

The vertical angle of elevation and horizontal arc of oscillation is field adjustable and can be set and locked in position. The monitor can be set to oscillate over a range of 0°-120° and the oscillation arc can be set anywhere within the 360° field of operation.

The unit is equipped with a garden hose test connection. This allows functional check of the oscillating mechanism without system flow.

Note:

1. Pressure Gauge is optional supply and is for indicative purpose only; should not be considered for friction loss movement.
2. The vertical lock needs quarter turn for locking and unlocking, excessive movement may again lock for lock position or unlock to unlock position.

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.

The vertical angle of elevation and horizontal arc of oscillation is field adjustable and can be set & locked in position. Monitor can be set at oscillation over a range of 0° – 120° and oscillation arc can be set anywhere with 360° field of operation. The elevation angle of monitor is between +80° to −40° from horizontal.

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 physical inspection of the monitor on weekly basis. 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 three months 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, must be ensured. Use water resistant low friction synthetic grease. Lubrication is required for smooth operation.

Each monitor must be operated with full flow once in a year in accordance to the guidelines of the organisation having local jurisdiction.

The owner is responsible for maintaining the equipment in proper operating condition. Each monitor is supplied with Instruction Manual for installation, operation and maintenance.

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 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.

WARNING ⚠

THE OSCILLATING UNIT CONTAINS MOVING PARTS. KEEP HANDS, FINGERS AND OBJECTS AWAY FROM THE MOVING PARTS AND NEVER OPERATE WITHOUT COVER FITTED ON THE UNIT.

DO NOT TRY TO STOP THE MONITOR OSCILLATION, AS THE MONITOR CAN CAUSE INJURY TO PERSON AND THE GEAR MAY SLIP AND OSCILLATION MAY STOP. THIS MONITOR SHOULD NOT BE USED FOR ANY OTHER PURPOSE, OTHER THAN FOR FIRE-FIGHTING.

ADJUST THE ARC OF OSCILLATION

1. To adjust the arc of oscillation, shut off the water supply and open the top cover plate.
2. Close the speed control valve.
3. Arc of oscillation can be set at 25°, 45°, 60°, 80°, 100° or 120° by unscrewing the bolt on link and fixing at desired angle as marked. (Fig. 4)
4. Refix the top cover plate, after opening the speed control valve.

TROUBLE SHOOTING

If the Oscillating unit fails to oscillate, then check the following:

- Check the speed control valve is open.
- Make sure the operating pressure is minimum 3.5 Bar (50 PSI).
- Check and make sure the pelton wheel water exhaust is freely flowing without any obstruction.

- Make sure all links are free from debris and bolts are loose and are in place.
- If the unit is not operated from long time, then clean and operate at 7 Bar for few minutes, to make sure the line link is free to move.
- The oscillating unit may wear and tear, hence the unit needs to be opened and inspected after approximately two hours of oscillation. If considerable wear and tear is observed then the parts of oscillation unit need to be replaced, to keep the monitor in healthy condition.

WATER-POWERED OSCILLATING MONITOR RANGE DATA – MONITOR MODEL VAJRA-331

Nozzle Model	Monitor Elevation Angle	Monitor Inlet Pressure & Reach Data					
		100 PSI			120 PSI		
		Flow GPM	Reach in Meters		Flow GPM	Reach in Meters	
			Fixed	Oscillating		Fixed	Oscillating
VARSHA 40U-500	5	500	10	8.5	547	11	9.5
	15	500	24	19	547	22	18
	30	500	60	50	547	61	50
VARSHA 40U-750	5	750	11	9	821	12	10
	15	750	24.5	20.5	821	25	21
	30	750	61.5	51	821	62	52
VARSHA 40U-1000	5	1000	12	10	1095	13.5	11.3
	15	1000	26	22	1095	28	23.5
	30	1000	65	56	1095	66	55
VARSHA HF40U-500	5	500	7	5.5	547	7.5	6.5
	15	500	18	14	547	19	15
	30	500	46	38	547	47	39
VARSHA HF40U-750	5	750	9.5	7.8	821	10	8
	15	750	21	17	821	22.5	19
	30	750	54	46	821	55	45

NOTE :

- VARSHA 40U is non-aspirating, non-inducting Nozzle, it needs premix foam concentrate.
- VARSHA HF40U is non-aspirating, self-inducting Nozzle.
- Above readings are considered in no wind conditions. Wind or other environmental factors can affect the readings.
- Some ranges are based on extrapolation of existing data and observaions.

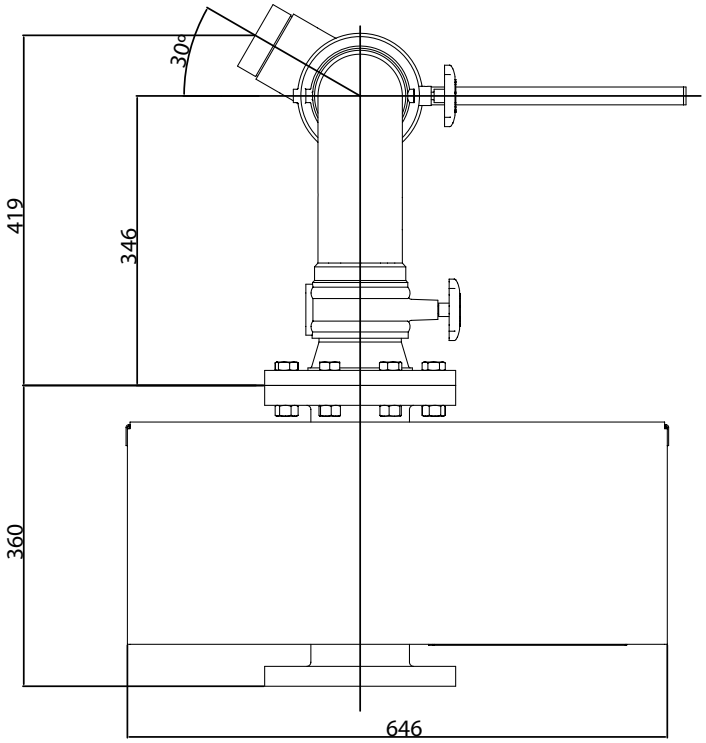


Fig.1

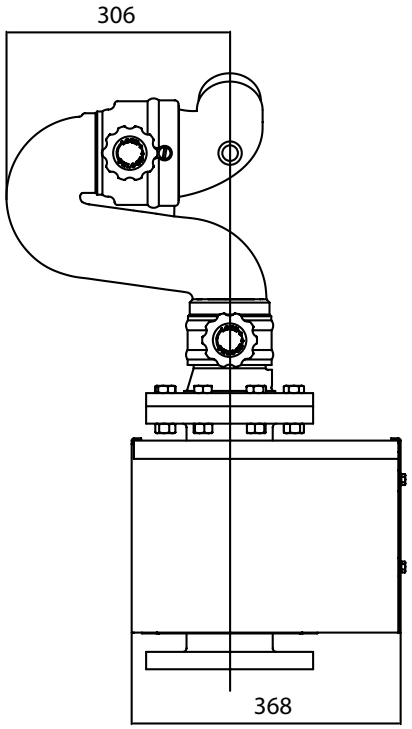


Fig.2

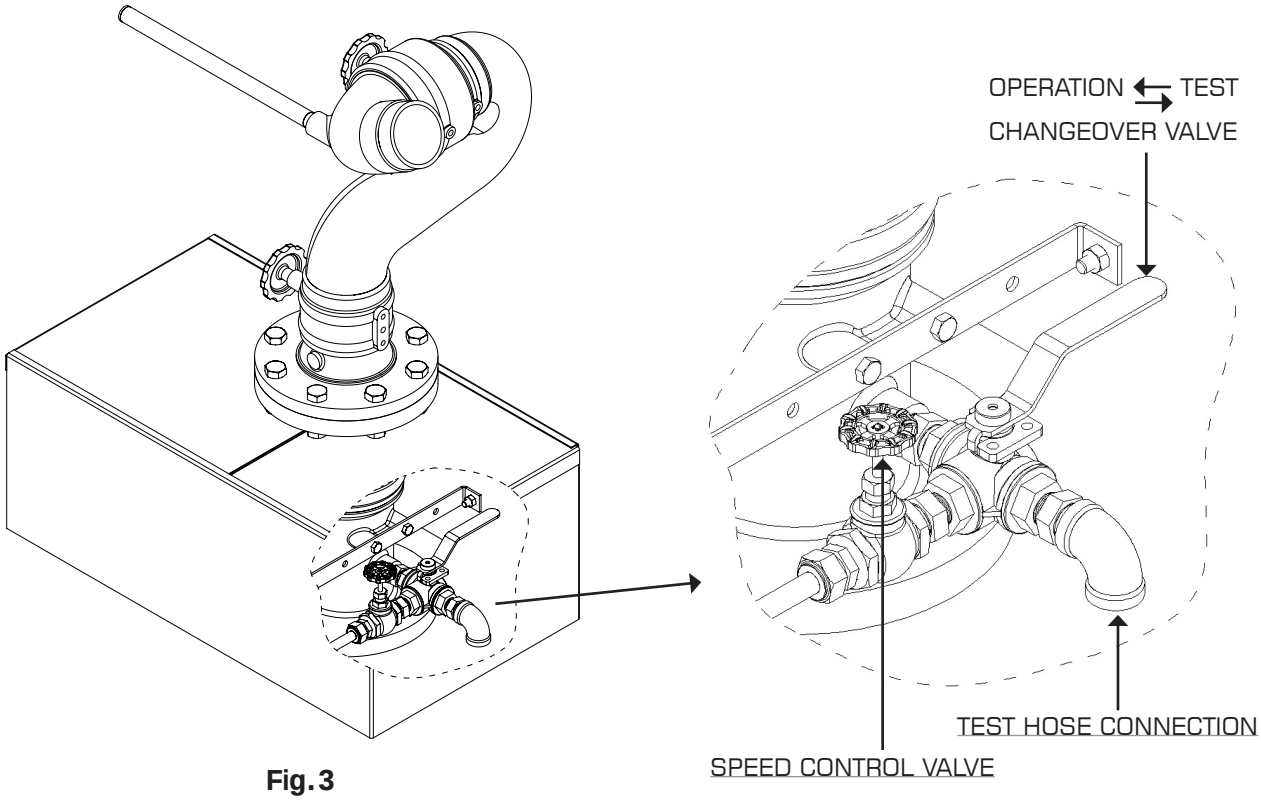
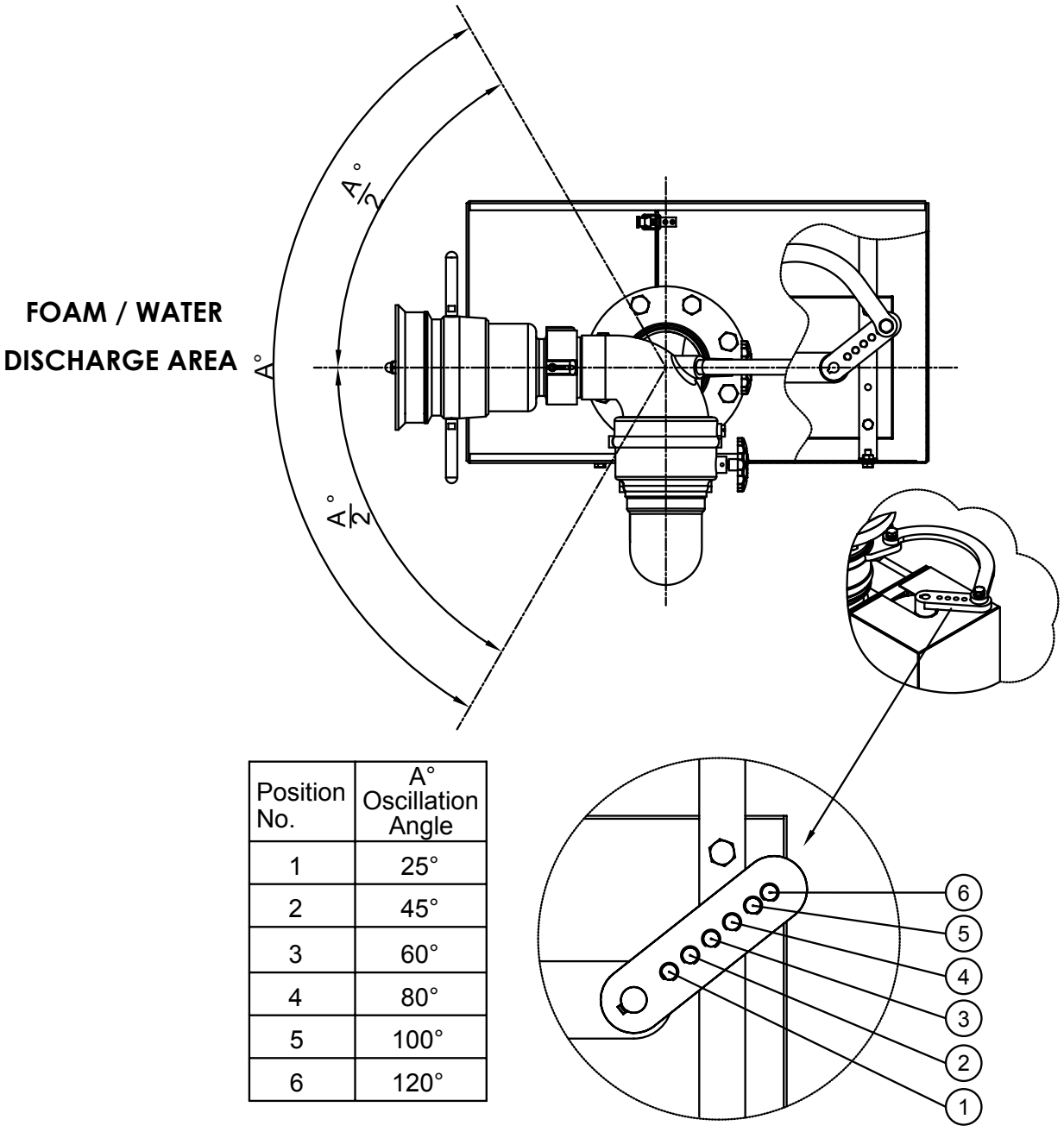


Fig.3

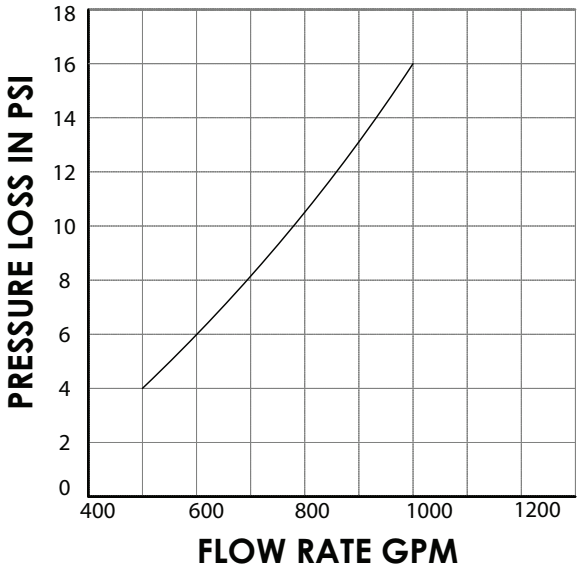


Position No.	A° Oscillation Angle
1	25°
2	45°
3	60°
4	80°
5	100°
6	120°

OSCILLATION ANGLE SETTING DETAILS (Fig.3)

Fig.4

OSCILLATING UNIT WITH MONITOR VAJRA-331 - PRESSURE LOSS CHART



Note: Data are for reference only.
Actual results may vary depending on environmental and testing conditions.

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

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