TECHNICAL DATA

Monitors

Discharge Devices | Model KMT, KMH, KMW Monitor; Model KNN, KNS Nozzle
Model KSO Oscillating Unit

1 General description

Monitors are fixed fire suppression discharge devices used in the application of firefighting water or foam solution to a specific area or risk. Monitors are an effective way of covering large areas of application.

Manual or oscillating monitors are usually part of a fixed deluge or flow control system but can also be supplied locally via hydrant or fire truck hose supplies. Monitors can also be mounted on mobile trailers for greater versatility in challenging fire scenarios.

Monitors are commonly used in high risk areas such as flammable liquid storage tank farms, loading racks, incineration facilities, recycling plants, aircraft hangars, helidecks and jetty protection.

This technical data is intended for trained experts.
Technical data can be found on the KCA website at http://www.kcantincendi.com. The website may include a more recent edition of this technical data sheet.

For further information, please contact KCA or refer to the technical documentation. The contents of this publication are subject to modifications without notice.



Fig 1.1 Manual handwheel monitor



Fig 1.2 Oscillating tiller operated monitor

Images for illustration purposes only

2 Listings and approvals

The Monitor/Nozzle/Oscillation combination is UL Listed as part of a fire extinguishing system with specific foam concentrates.

Listed system components can be found at https://iq.ulprospector.com

UL Listed GFXX.EX27669 – Foam Monitors

Oscillating unit compliant with 2006/42/EC machine directive

"SFFF compatible" refers to this product as being part of a SFFF Foam system that has been tested to recognised standards. Not all configurations are available. Please consult technical data and/or the Approval/Listing for usage requirements.

3 Technical data

3.1 Construction features

- UL Listed with Fomtec AFFF 3%S C6 and ENVIRO USP 3% foam*
- UL Listed flow rates of 250, 350, 500, 750 or 1,000 GPM*
- Available as non-oscillating or oscillating
- Stainless steel monitor body for enhanced corrosion protection
- Suitable for use with fresh water, salt water or foam solution
- Tiller or handwheel control options
- 2.5" or 3" body with range of inlet flange sizes*
- ANSI 150 or PN16 inlet flanges
- Maximum working pressure, UL Listed: 250 psi (17.2 bar)
- Non-self-inducting or self-inducting nozzle options*
- NH (NST) or BSP threads
- Oscillation test feature

** Please refer to UL Product IQ for actual Listing details.*

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3.2 Standard materials

KMT - Tiller control style monitor	
Monitor inlet flange	Stainless steel ASME SA-182 F316 (ANSI 150 or PN16)
Monitor body	Stainless steel ASME SA-312 TP316
Locking knob	Stainless steel AISI 304
Monitor outlet	NH (NST) or BSP threaded (parallel)
Tiller	Stainless steel ASME SA-312 TP316
Tiller grip	Rubber
Joint	Stainless steel AISI 316. Phosphor bronze balls
Finish	Flame Red RAL3000 (epoxy zinc-rich primer with aliphatic polyurethane finish)
KMH, KMW - Handwheel control style monitor	
Monitor inlet flange	Stainless steel ASME SA-182 F316 (EN 1.4401 AISI 316)
Monitor body	Stainless steel ASME SA-312 TP316
Locking knob	Stainless steel AISI 304
Gear	Bronze
Monitor outlet	NH (NST) or BSP threaded
Handwheel	Stainless steel AISI 304
Handwheel shaft	Stainless steel AISI 316
Joint	Stainless steel AISI 316. Phosphor bronze balls
Finish	Flame Red RAL3000 (epoxy zinc-rich primer with aliphatic polyurethane finish)
KNN Non-self-inducting and KNS Self-inducting nozzles	
Nozzle inlet	NH (NST) or BSP threaded (parallel)
Nozzle body (250, 350, 500 US GPM)	Anodized aluminium or nickel aluminium bronze
Nozzle body (750, 1,000 US GPM)	Stainless steel AISI 316
Spray adjustment knob	Stainless steel AISI 304
Diffuser	Brass
Finish	Natural
Self-inducting hose (model KNS only)	Steel reinforced PVC
Self-inducting isolation valve (model KNS only)	Brass (lockable)
Foam orifice (model KNS only)	Stainless steel AISI 316
KSO Oscillating unit	
Inlet / Outlet flange	Stainless steel AISI 316
Body	Stainless steel AISI 316
Gearbox enclosure	Aluminium
Impeller nozzle	Brass
3-Way test / run / isolation valve	Brass
Impeller	Anodized aluminium
Splash shield / guard	Stainless steel AISI 316
Finish	Body / Flange - Flame Red RAL3000 (epoxy zinc-rich primer with aliphatic polyurethane finish) Components - Natural
Rotation Speed	Approximately 4°/second @ 100 psi (6.89 bar)
Note: This is a list of main components only. Further details can be given on request.	

Table 3.2.1 - Standard materials

3.3 Standard design specifications

Working pressure	250 psi (17.2 bar)
Factory test pressure	500 psi (34.4 bar)
Design temperature range	-20 °C / +80 °C (-4 °F / 176 °F)
Operating temperature range	-10 °C / +60 °C (14 °F / 140 °F)

Table 3.3.1 - Standard design specifications

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3.4 Ordering Information

3.4.1 Monitor selection

Non-oscillating and oscillating monitors are available in 3 different control types:

(KMT) Tiller – Vertical and horizontal stand-by setting can be fixed via the locking knobs (***6***).
Manual movement by a trained operator is controlled by releasing the locking knobs and directing the water/foam flow via the tiller in the desired direction. (***Fig 3.4.1.1***)

(KMH) 1-Handwheel - Vertical stand-by setting can be fixed by adjusting the handwheel (***5***) to the desired position. The horizontal position is fixed via the locking knob (***6***). Manual movement by a trained operator is controlled by adjusting the handwheel for the vertical movement. Manual operation of the horizontal movement is not practical during water/foam flow so for this reason it is best suited to use with the oscillating unit only. (***Fig 3.4.1.2***)

(KMW) 2-Handwheel - Vertical and horizontal stand-by setting can be fixed by turning the handwheels (***5***). Manual movement by a trained operator is controlled by turning the handwheels and directing the water/foam flow. (***Fig 3.4.1.3***)

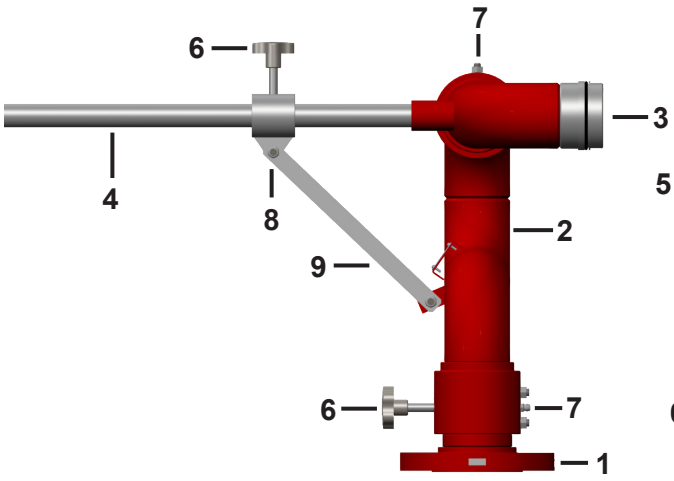


Figure 3.4.1.1

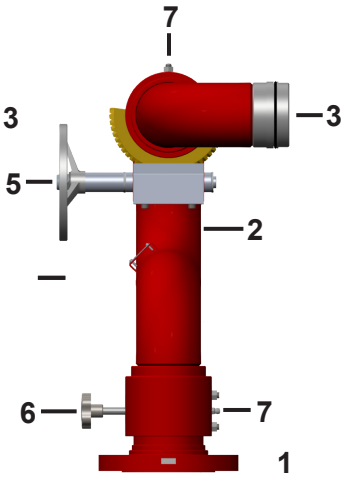


Figure 3.4.1.2

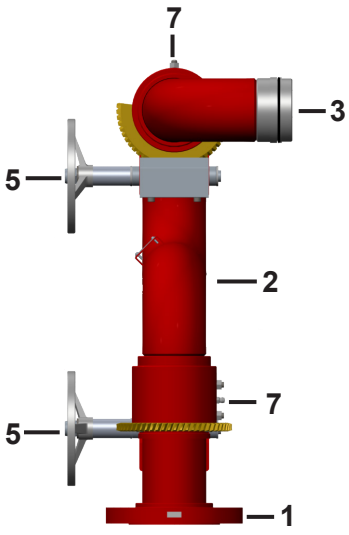


Figure 3.4.1.3

Item	Description	Item	Description
1	Water / foam inlet (flanged)	6	Locking knob
2	Body	7	Greaser nipple
3	Water / foam outlet (threaded)	8	Tiller slide
4	Tiller	9	Tiller connecting rod
5	Handwheel		

Table 3.4.1.4 – Manual monitor general features

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3.4.2 Nozzle selection

Non-oscillating and oscillating monitors are available with non-self-inducting or self-inducting type nozzles.

(KNN) Non-self-inducting nozzle is for use with water or with foam solution supplied via a suitable bladder tank proportioning, foam pump proportioning or other foam dosing system. (***Fig 3.4.2.1***)

(KNS) Self-inducting nozzle will use the flow of water through the internal waterway to draw foam into the nozzle and mix into a foam solution locally before discharging from the outlet. The foam induction can be isolated using the supplied ball valve and water only can be used. The total flow in this condition will be 3% less than nominal. ***(Fig 3.4.2.2)***.

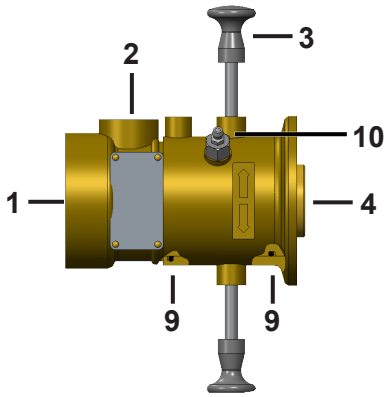


Figure 3.4.2.1

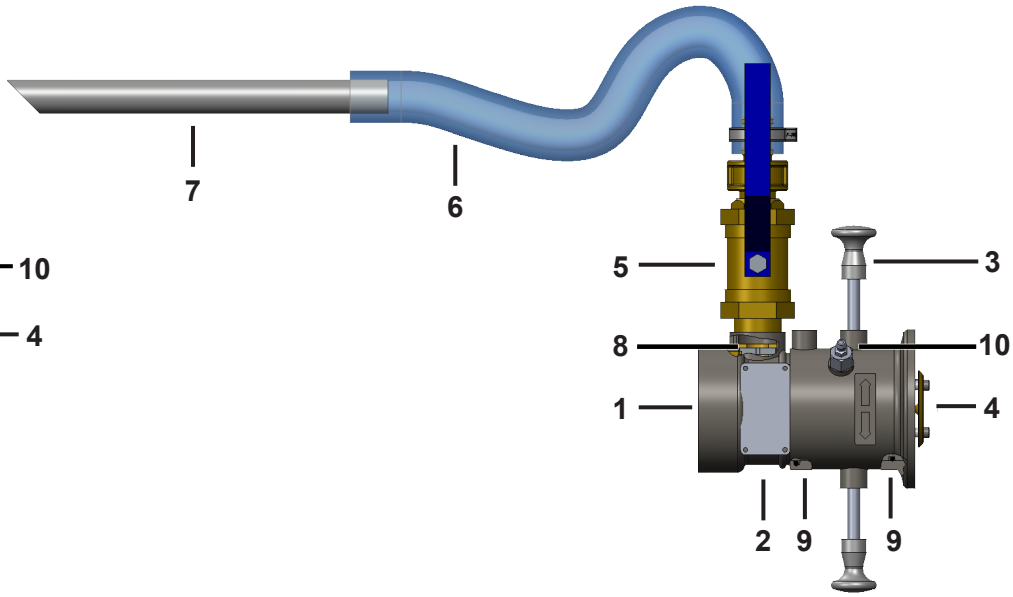


Figure 3.4.2.2

Item	Description	Item	Description
1	Water / foam inlet (threaded)	6	Foam concentrate suction hose
2	Body	7	Foam concentrate pick-up pipe
3	Jet / spray adjustment knob	8	Sized orifice
4	Water / foam outlet	9	Terminal gasket
5	Foam isolation valve	10	Greaser nipple

Table 3.4.2.3 – Nozzle general features

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3.4.3 Oscillating unit

(KSO) Oscillating unit can be added to any of the monitors featured in this data page to allow automatic coverage of a fixed area (from 15° to 360°) in a fire condition. This can be beneficial when human (manual) control is not possible or is undesirable due to safety concerns or accessibility. Manual operation by trained personnel is also possible. The requirement for oscillating monitors is detailed in various design standards such as NFPA409, NFPA418 and EN13565-2 for example.

The oscillating unit's movement is driven by a small amount of redirected water/foam solution travelling through the monitor. A water turbine shield is included as standard to direct this water/foam solution downwards.

A test feature is included to enable a test of the oscillation function and range without discharging from the monitor.

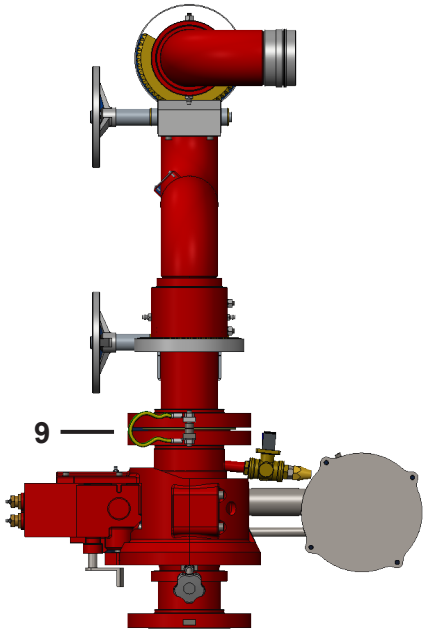


Figure 3.4.3.1 | KSO with monitor KMH

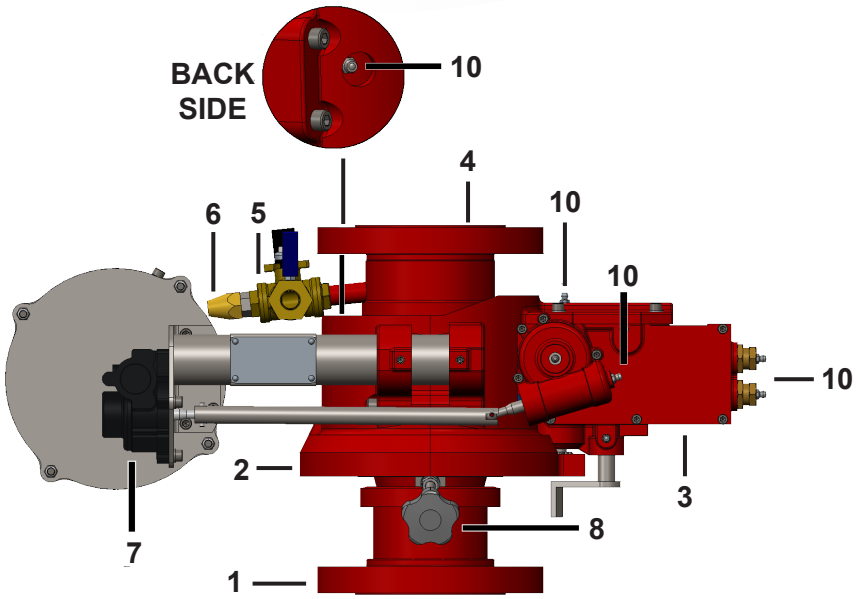


Figure 3.4.3.2 | KSO

Item	Description	Item	Description
1	Water / foam inlet (flanged)	6	Impeller nozzle
2	Body	7	Impeller wheel and reduction gear assembly
3	Gearbox	8	Oscillation angle adjustment knob (x2)
4	Water / foam outlet (flanged)	9	Earthing cable
5	3-Way test / run / impeller isolation valve	10	Greaser nipple

Table 3.4.3.3 – Oscillating unit general features

3.4.4 Product selection guide

A complete monitor can be ordered by selecting the correct monitor and nozzle for non-oscillating units or monitor, nozzle and oscillating unit where the self-oscillation function is required.

1) Select the monitor type as described in ***section 3.4.1*** (Tiller, 1-handwheel or 2-handwheel)
2) Select the flow rate required (this will define the monitor body size automatically)
3) Select the monitor inlet flange size and flange pattern

Note: ANSI flanged monitor only with NH (NST) nozzle threads and PN16 flanged monitor only with BSP nozzle threads.

4) Select the nozzle type as described in ***section 3.4.2*** (Non-self-inducting or self-inducting)
5) Select the nozzle material (choice with 2.5" model only)
6) If an oscillating monitor is required, select the oscillating unit part number from the same line as the monitor part number to ensure flange compatibility.

The ordering part numbers can now be defined.

Example 1

1,000 USG Non-oscillating, 2-Handwheel monitor with 4" PN16 inlet flange & self-inducting stainless steel nozzle.
Monitor = KMW3X4P, Nozzle = KNN1000BS. (Monitor outlet/nozzle inlet threads are BSP by default due to PN16 flange selection)

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Example 2

250 USG Oscillating tiller monitor with 3" ANSI inlet flange and non-self-inducting nickel aluminium bronze nozzle.
Monitor = KMT25X3A, Oscillating unit = KSO3X3A, Nozzle = KNS250NN. (Monitor outlet/nozzle inlet threads are NH (NST) by default due to ANSI flange selection)

Flow rate[2,3]		Monitor body		Monitor inlet flange		Part number	
GPM	l/min	Size	Outlet[4]	Size	Pattern	Monitor	Oscillating unit
250 / 350 / 500	946 / 1,325 / 1,892	2.5"	NH (NST)	2.5"	ANSI	KMT25X25A	N/A[1]
250 / 350 / 500	946 / 1,325 / 1,892	2.5"	BSP	2.5"	PN16	KMT25X25P	N/A[1]
250 / 350 / 500	946 / 1,325 / 1,892	2.5"	NH (NST)	3"	ANSI	KMT25X3A	KSO3X3A
250 / 350 / 500	946 / 1,325 / 1,892	2.5"	BSP	3"	PN16	KMT25X3P	KSO3X3P
250 / 350 / 500	946 / 1,325 / 1,892	2.5"	NH (NST)	4"	ANSI	KMT25X4A	KSO4X4A
250 / 350 / 500	946 / 1,325 / 1,892	2.5"	BSP	4"	PN16	KMT25X4P	KSO4X4P
750 / 1,000	2,838 / 3,785	3"	NH (NST)	3"	ANSI	KMT3X3A	KSO3X3A
750 / 1,000	2,838 / 3,785	3"	BSP	3"	PN16	KMT3X3P	KSO3X3P
750 / 1,000	2,838 / 3,785	3"	NH (NST)	4"	ANSI	KMT3X4A	KSO4X4A
750 / 1,000	2,838 / 3,785	3"	BSP	4"	PN16	KMT3X4P	KSO4X4P

Table 3.4.5 – KMT tiller control monitor

Flow rate[2,3]		Monitor body		Monitor inlet flange		Part number	
GPM	l/min	Size	Outlet[4]	Size	Pattern	Monitor	Oscillating unit
750 / 1,000	2,838 / 3,785	3"	NH (NST)	3"	ANSI	KMH3X3A	KSO3X3A
750 / 1,000	2,838 / 3,785	3"	BSP	3"	PN16	KMH3X3P	KSO3X3P
750 / 1,000	2,838 / 3,785	3"	NH (NST)	4"	ANSI	KMH3X4A	KSO4X4A
750 / 1,000	2,838 / 3,785	3"	BSP	4"	PN16	KMH3X4P	KSO4X4P

Table 3.4.6 – KMH 1-handwheel control monitor

Flow rate[2,3]		Monitor body		Monitor inlet flange		Part number	
GPM	l/min	Size	Outlet[4]	Size	Pattern	Monitor	Oscillating unit
750 / 1,000	2,838 / 3,785	3"	NH (NST)	3"	ANSI	KMW3X3A	KSO3X3A
750 / 1,000	2,838 / 3,785	3"	BSP	3"	PN16	KMW3X3P	KSO3X3P
750 / 1,000	2,838 / 3,785	3"	NH (NST)	4"	ANSI	KMW3X4A	KSO4X4A
750 / 1,000	2,838 / 3,785	3"	BSP	4"	PN16	KMW3X4P	KSO4X4P

Table 3.4.7 – KMW 2-handwheel control monitor

Flow Rate[2,3]		Nozzle			Part number	
GPM	l/min	Size	Thread[4]	Material	Non-self-inducting	Self-inducting[5]
250	946	2.5"	NH (NST)	Anodized aluminium	KNN250NA	KNS250NA
250	946	2.5"	BSP	Anodized aluminium	KNN250BA	KNS250BA
250	946	2.5"	NH (NST)	Nickel aluminium bronze	KNN250NN	KNS250NN
250	946	2.5"	BSP	Nickel aluminium bronze	KNN250BN	KNS250BN
350	1,325	2.5"	NH (NST)	Anodized aluminium	KNN350NA	KNS350NA
350	1,325	2.5"	BSP	Anodized aluminium	KNN350BA	KNS350BA
350	1,325	2.5"	NH (NST)	Nickel aluminium bronze	KNN350NN	KNS350NN
350	1,325	2.5"	BSP	Nickel aluminium bronze	KNN350BN	KNS350BN
500	1,892	2.5"	NH (NST)	Anodized aluminium	KNN500NA	KNS500NA
500	1,892	2.5"	BSP	Anodized aluminium	KNN500BA	KNS500BA
500	1,892	2.5"	NH (NST)	Nickel aluminium bronze	KNN500NN	KNS500NN
500	1,892	2.5"	BSP	Nickel aluminium bronze	KNN500BN	KNS500BN
750	2,838	3"	NH (NST)	Stainless steel	KNN750NS	KNS750NS
750	2,838	3"	BSP	Stainless steel	KNN750BS	KNS750BS
1,000	3,785	3"	NH (NST)	Stainless steel	KNN1000NS	KNS1000NS
1,000	3,785	3"	BSP	Stainless steel	KNN1000BS	KNS1000BS

Table 3.4.8 – KNN non-self-inducting and KNS self-inducting monitor nozzle

Footnotes for ***tables 3.4.5, 3.4.6, 3.4.7 and 3.4.8***
[1] Monitor with 2.5" inlet flange not suitable for oscillating unit
[2] Flow rates based on nozzle inlet pressure of 100 psi (6.89 bar)
[3] Flow rate with water or foam solution
[4] NH (National Hose) and NST (National Standard Thread) are two references for the same thread specification
[5] Self-inducting nozzle factory set at 3% in line with UL listing requirements

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4 Scope of delivery

Ensure that all components are complete and in good condition.

Included

The non-oscillating monitor and selected nozzle are supplied separately (unassembled).

The oscillating monitor, selected nozzle and oscillating unit are supplied separately (unassembled).

The self-inducting nozzle is supplied with a 7-1/2 ft (2.3 m) long pick-up tube assembly (hose & tube) which is supplied loose. A shut-off valve and sized orifice is supplied with the self-inducting nozzle. It is recommended that this hose length is not changed to ensure optimum performance and listing compliance.

Not included

Flange bolts, nuts, washers, gaskets for the connection of the monitor/oscillating unit to the system pipework.

5 Availability

Please contact KCA for further information.
The product is available directly from KCA and official distributors only.

6 Product variants

6.1 Options

- None

6.2 Monitor dimensions

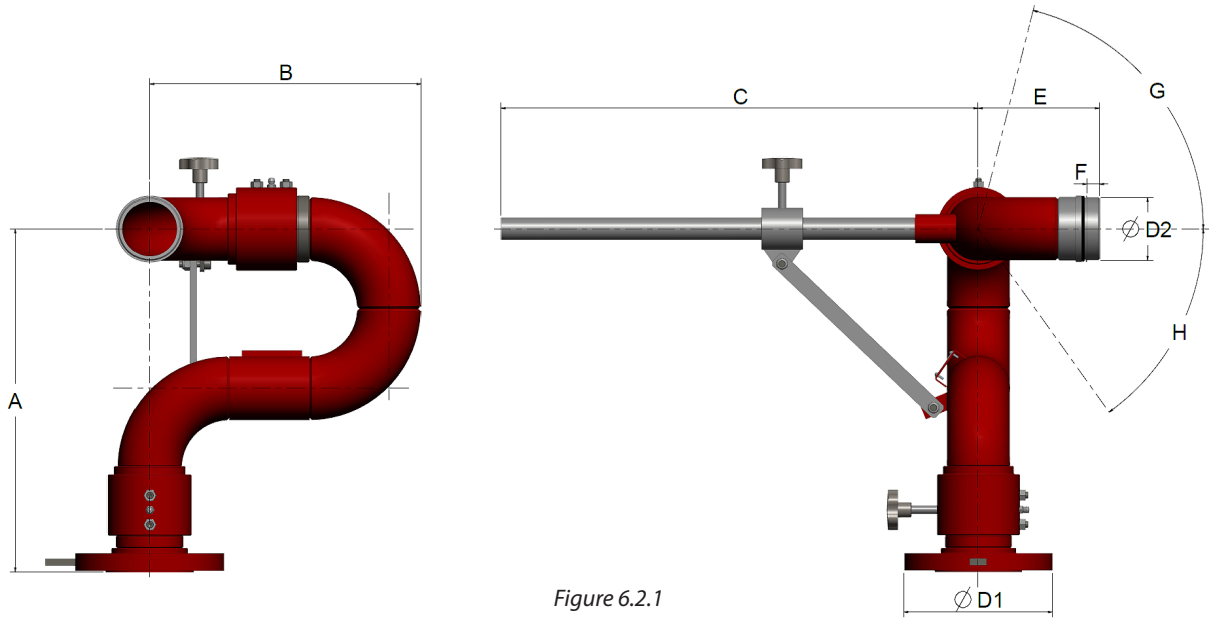


Figure 6.2.1

Body	Inlet flange (ØD1)	Body outlet (ØD2)	Weight		A		B		C		E		F		Angle		Rotation
			lbs	kg	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	G	H	
2.5"	2.5", 3", 4"	2.5" NH (NST), BSP	37.5	17	15.75	400	12.99	330	14.17	360	5.71	145	0.83	21	+85°	-65°	360°
3"	3", 4"	3" NH (NST), BSP	47.5	21.5	18.7	475	15.16	385	25.2	640	5.91	150	0.91	23	+70°	-55°	360°

Table 6.2.2 – KMT tiller control monitor dimensions

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6.2 Monitor dimensions (cont.)

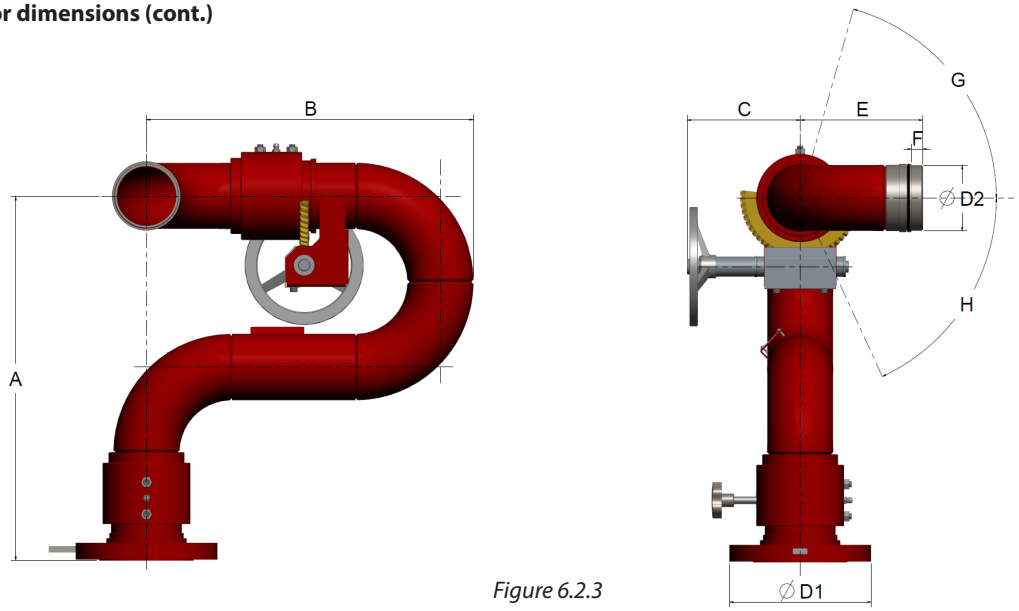


Figure 6.2.3

Body	Inlet flange (ØD1)	Body outlet (ØD2)	Weight		A		B		C		E		F		Angle		Rotation
			lbs	kg	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	G	H	
3"	3", 4"	3" NH (NST), BSP	51.9	23.5	18.7	475	17.32	440	6.2	158	5.91	150	0.91	23	+85°	-70°	360°

Table 6.2.4 – KMH 1-handwheel control monitor dimensions

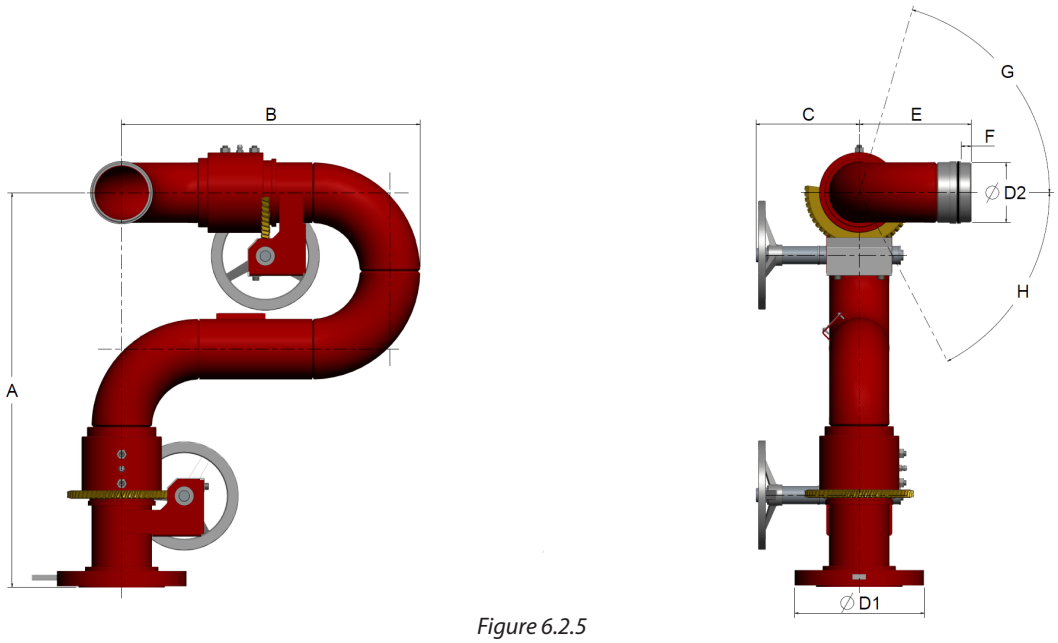


Figure 6.2.5

Body	Inlet flange (ØD1)	Body outlet (ØD2)	Weight		A		B		C		E		F		Angle		Rotation
			lbs	kg	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	G	H	
3"	3", 4"	3" NH (NST), BSP	56.3	25.5	21.65	550	17.32	440	6.2	158	5.91	150	0.91	23	+85°	-70°	360°

Table 6.2.6 – KMW 2-handwheel control monitor dimensions

6.3 Nozzle dimensions

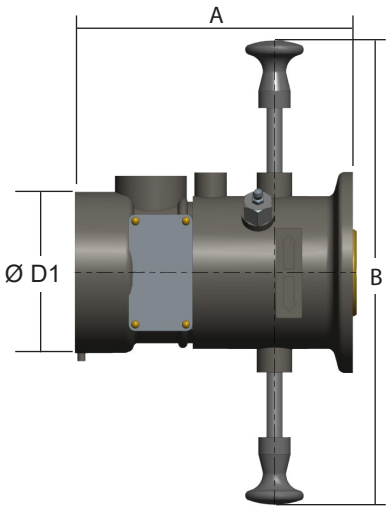


Figure 6.3.1

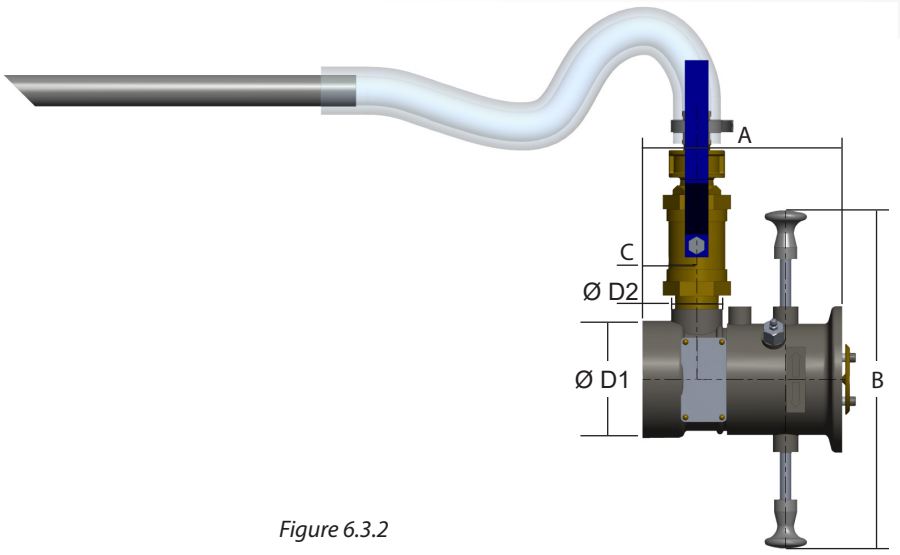


Figure 6.3.2

Inlet (ØD1)	Type	Material	Flow rate (GPM)	Thread	Weight		A		B		C		Ø D2	
					lbs	kg	Inch	mm	Inch	mm	Inch	mm	Inch	mm
2.5"	KNN Non-self inducting	AA	250, 350 500	BSP	5.5	2.5	6.7	170	11.1	282	N/A	N/A	N/A	N/A
		NAB		NH	12.1	5.5	6.7	170	11.1	282	N/A	N/A	N/A	N/A
3"		SST	750	BSP	14.3	6.5	6.5	164	10.75	273	N/A	N/A	N/A	N/A
		SST	750	NH	15.9	7.2	7.8	198	10.75	273	N/A	N/A	N/A	N/A
		SST	1,000	BSP, NH	33.1	15	9.3	237	11.97	304	N/A	N/A	N/A	N/A
2.5"	KNS Self-inducting	AA	250, 350 500	BSP	7.7	3.5	6.7	170	11.1	282	1.81	46	1	25
		NAB		NH	16.6	7.5	6.7	170	11.1	282	1.81	46	1	25
3"		SST	750	BSP	19.2	8.7	9.1	231	11.1	282	1.81	46	1	25
		SST	750	NH	17.7	8	7.8	197	10.75	273	2.09	53	1.25	32
		SST	1,000	BSP, NH	39.7	18	9.3	237	11.97	304	2.36	60	1.25	32

Notes: All nozzle have an effective spray angle from Jet to Fog
AA = Anodized Aluminium; NAB = Nickel Aluminium Bronze; SST = Stainless Steel

Table 6.3.3 – KNN non-self-inducting and KNS self-inducting monitor nozzle dimensions

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6.4 Oscillating unit dimensions

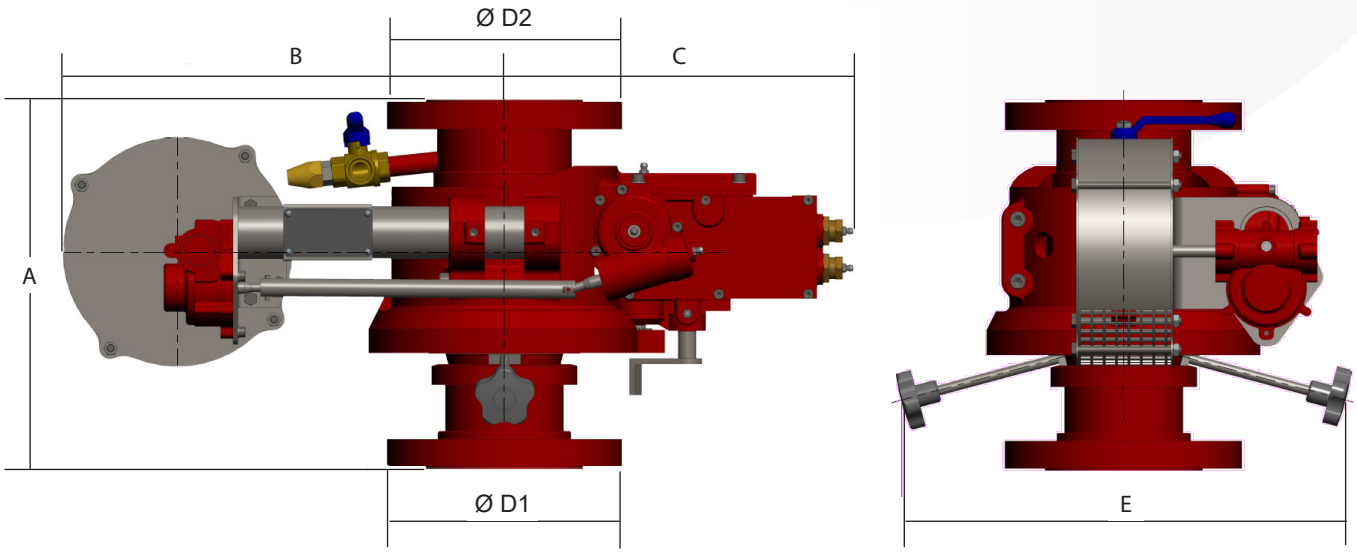


Figure 6.4.1

Flange			Weight		A		B		C		E	
Inlet (ØD1)	Outlet (ØD2)	Pattern	lbs	kg	Inch	mm	Inch	mm	Inch	mm	Inch	mm
3"	3"	ANSI, PN16	69	31	11.73	298	14.09	358	11.1	282	14.45	367
4"	4"	ANSI, PN16	71	32	11.73	298	14.09	358	11.1	282	14.45	367
1 Turbine flow rate is approximately 5.5 GPM (21 l/min) @ 100 psi (6.89 bar) 2 Oscillation range adjustable from 15° to 360° continuous												

Table 6.4.2 – Oscillating unit dimensions

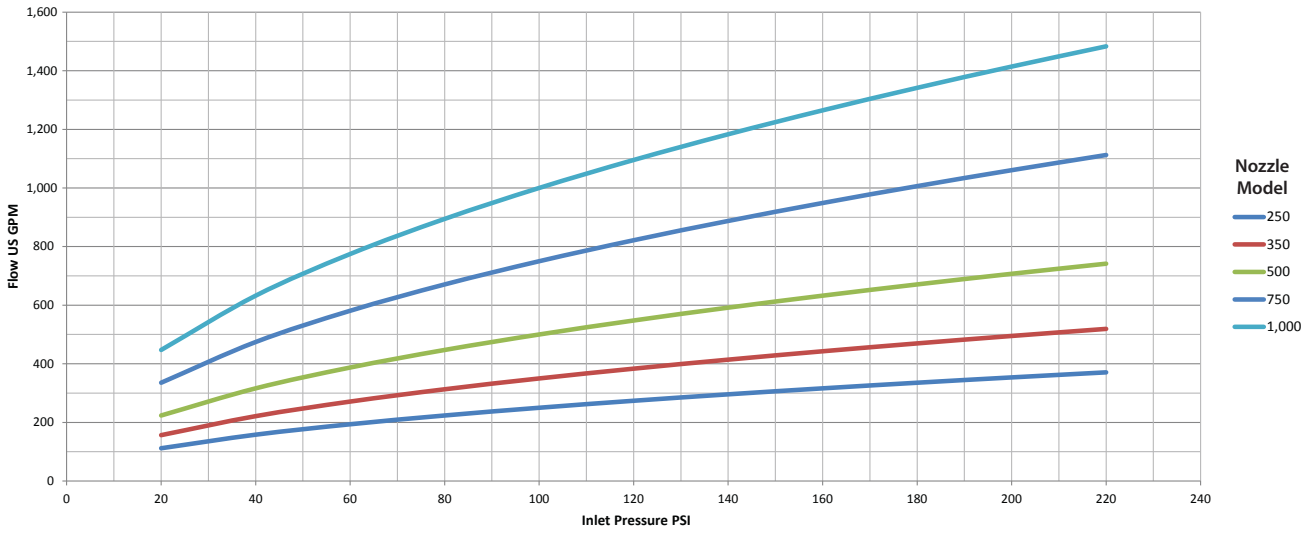
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7 Performance data

NOTICE

The following data is based on the monitors and nozzles referenced in this data page working together at their listed flow rates and pressures. Tests conducted without wind. Actual site conditions may produce different results.

7.1 Flow rate vs. nozzle inlet pressure

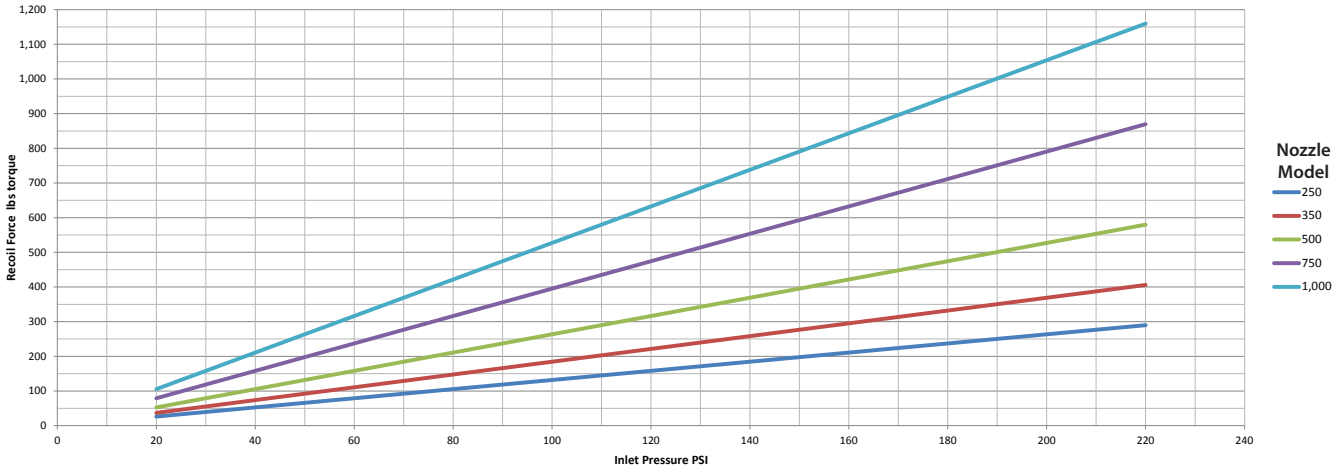


Graph 7.1.1 | Flow rate vs. nozzle inlet pressure

7.2 Recoil force vs. nozzle inlet pressure

WARNING

Take care to secure the monitor during installation to take account of the recoil force which increases with flow.

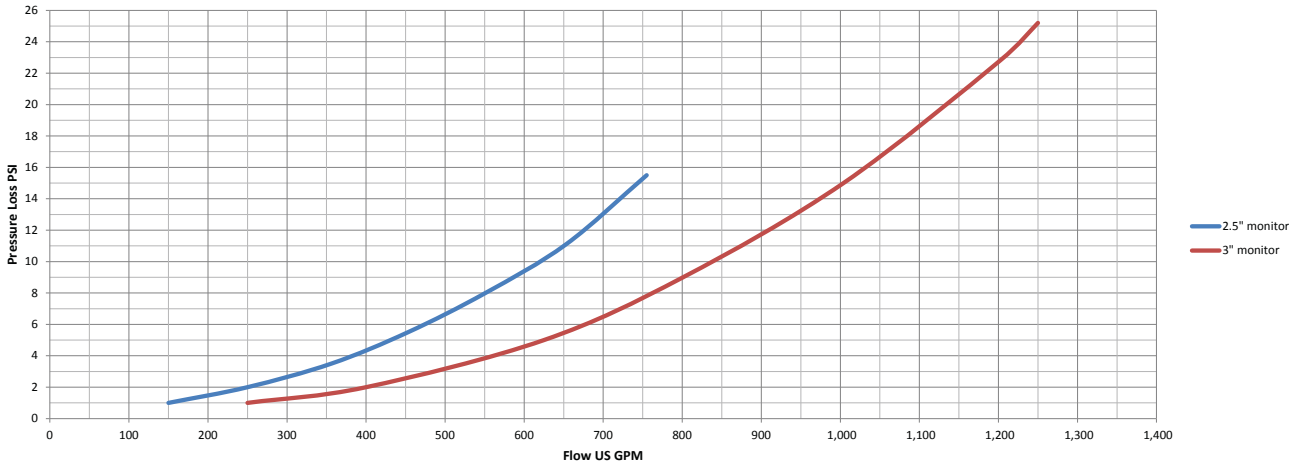


Graph 7.2.1 | Recoil force vs. nozzle inlet pressure

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7.3 Pressure loss vs. flow rate

As the flow increases through the monitor, the pressure loss effect also increases. As the monitor / nozzle performance data is based on the nozzle inlet pressure, the losses through the monitor (from monitor inlet flange to monitor outlet thread) should be taken into consideration at the design phase.



Graph 7.3.1 | Pressure loss vs. flow rate

7.4 Throw performance

The following charts are designed to give a general guide to monitor performance. The curves are an approximation based upon theoretical calculations. External factors WILL have an effect on this performance. The charts are based on a straight stream jet spray with water through a non-self inducting nozzle. (Note that other monitor discharge devices such as branchpipes are not considered as they are not covered by this UL listing). The design and installation shall take into consideration all external factors on discharge performance and use products and water supplies capable of achieving the required result.

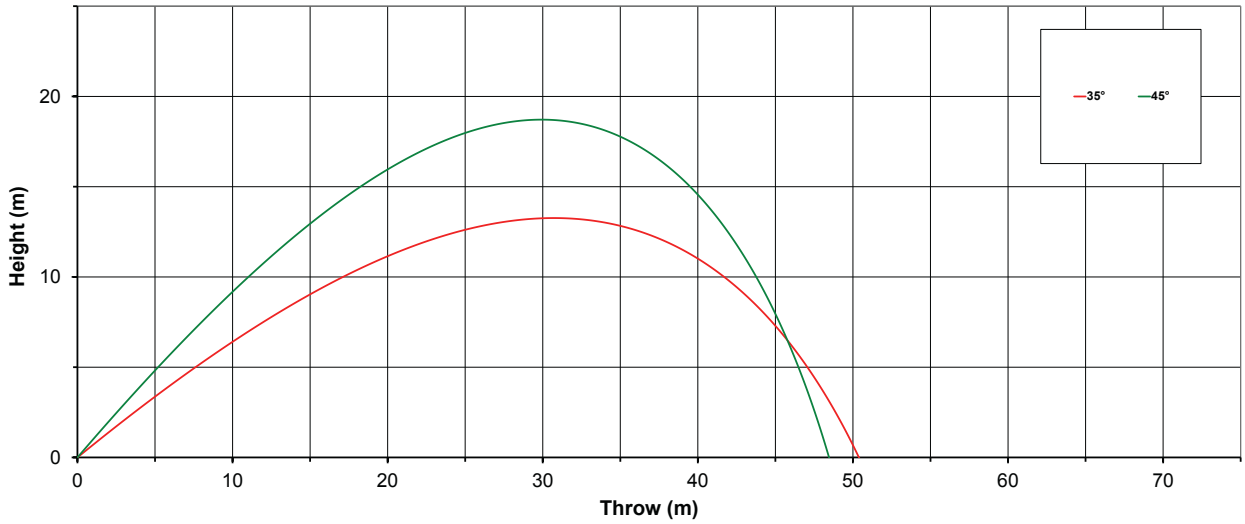
The following conditions will have an adverse impact on performance;

1) Discharge of foam solution.
2) Use of a self-inducting foam concentrate nozzle rather than an upstream proportioning system to supply the foam solution.
3) Nozzle spray angle. These charts are based on a full jet / straight stream only.
4) Wind will have a major impact on performance and the general location should be considered when planning. Throw angles above 35° will see a greater effect from the presence of wind.
5) Downstream valves or pipework configurations causing excessive pressure loss or turbulence.

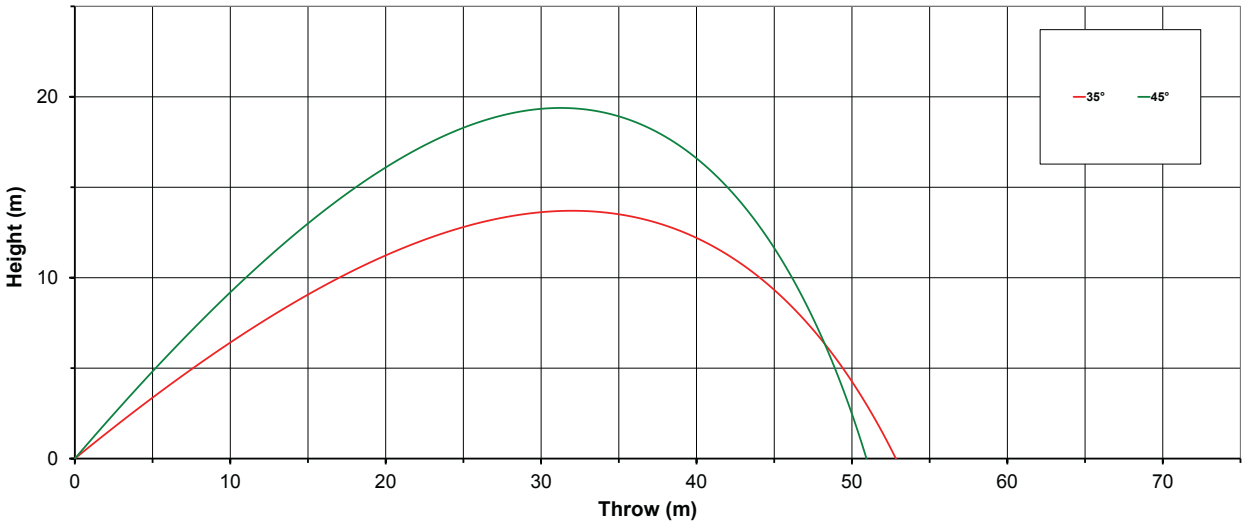
Outside applications such as tank farms and loading jettys pose the greatest challenge as multiple factors normally need to be considered.

All simulations assume the monitor is mounted at ground level with the nozzle approximately 1 m from ground level. Maximum theoretical throw is normally found between a 32° and 38° degrees monitor angle. Referenced pressures are measured at the nozzle inlet.

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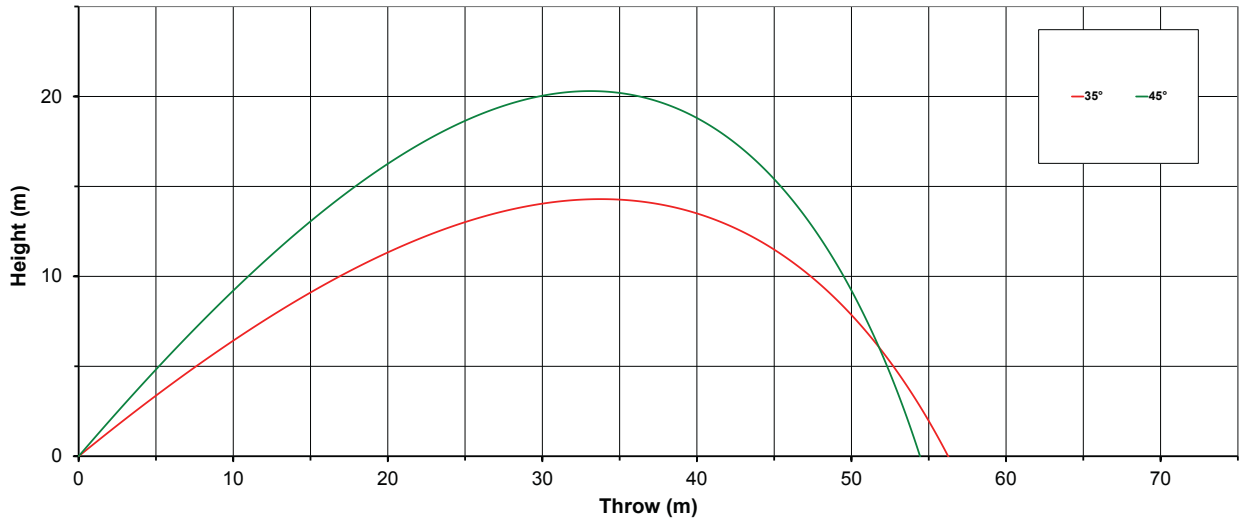


Graph 7.4.1 | 946 l/min (250 GPM) @ 6.89 bar (100 psi)

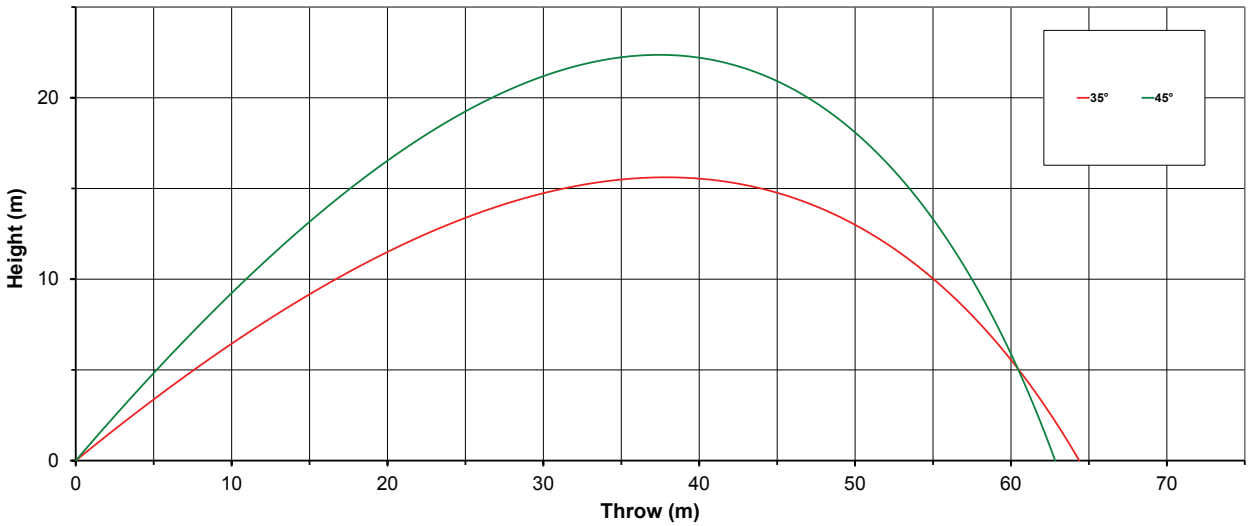


Graph 7.4.2 | 1,325 l/min (350 GPM) @ 6.89 bar (100 psi)

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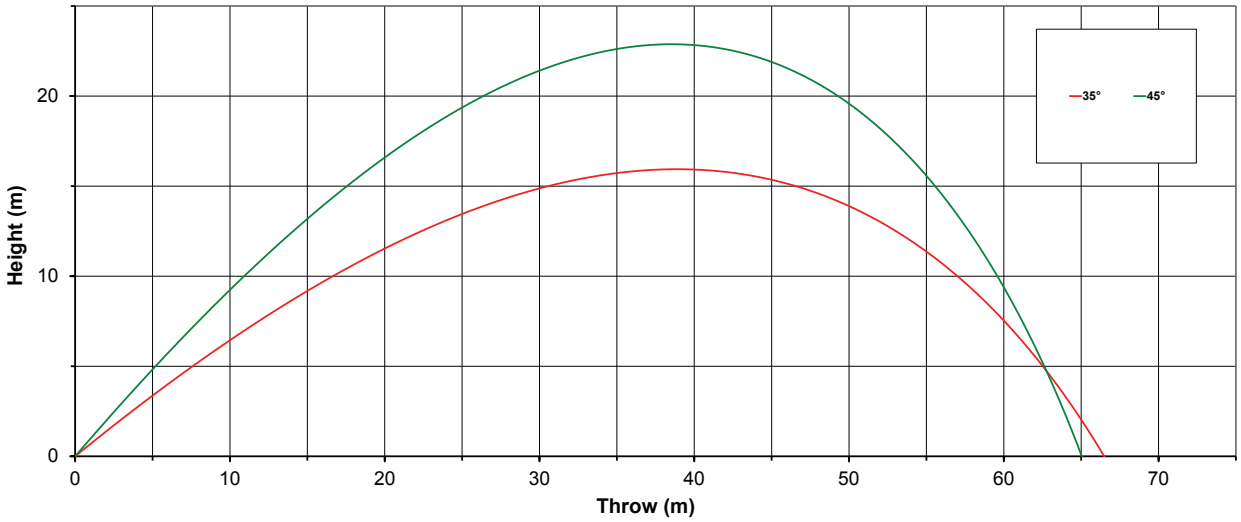


Graph 7.4.3 | 1,892 l/min (500 GPM) @ 6.89 bar (100 psi)



Graph 7.4.4 | 2,838 l/min (750 GPM) @ 6.89 bar (100 psi)

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Graph 7.4.5 | 3,785 l/min (1,000 GPM) @ 6.89 bar (100 psi)

8 Installation

Refer to respective requirements, according to the relevant standards for installation. If applicable, refer to FM Global Property Loss Prevention Datasheet 4-12 for specific test and commissioning criteria. In addition, the "Authority Having Jurisdiction" (AHJ) may have additional maintenance, testing and inspection requirements that must be followed.

WARNING

Monitors are designed to work under pressure and should only be installed and operated by trained personnel with the appropriate permission and supervision. The correct operation of this monitor has been tested up to a flowing pressure of 250 psi (17.2 bar). However, consideration should be given to the actual usable pressure based on site conditions, operator competence and the integrity of the installation structure. For the appropriate operation guidance, please refer to the instructions in our Operation & Maintenance manual.

9 Operation

For manufacturer's recommendations and requirements, please refer to ***Operation & Maintenance Manual TM2.3.5.1***

9.1 The non-oscillating (manual) tiller or handwheel operated monitor

This is a local discharge device used in fixed or mobile firefighting protection systems. These systems can be of the automatic or manually activated deluge/flow control type or a manually operated mobile trailer for example. The local control feature gives the possibility of controlling the water or water/foam discharge by adjusting its horizontal or vertical angle via the tiller or handwheel control.

The equipped nozzle can be adjusted to give various stream pattern shapes - from full jet to fog type.
All these controls are intended to achieve the highest efficiency in controlling and suppressing a fire or in cooling down hot surfaces exposed to fire.

The monitor is composed by three main parts:

- A lower body, rigidly connected through a flanged connection to the system's supply piping network
- An intermediate body containing the two rotating joints– this section being the one rotating horizontally
- A top terminal section which is connected to the nozzle (or branch pipe). This terminal section rotates horizontally together with the intermediate body and independently of it, it can also rotate vertically

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9.2 The oscillating tiller or handwheel monitor

This has all the features mentioned under ***9.1***, but also gives the possibility of operation without human intervention in fixed systems. This is particularly useful in dangerous areas, difficult to access areas or in applications where continuous operator availability cannot be guaranteed.

The oscillating unit is a device which enables a continuous movement on the horizontal plane to the monitor installed on it. The rotation motion is generated by a hydraulic turbine fed by the same water/foam solution flow going to the discharge device at the end of the monitor. The turbine is combined with a reduction gear system and an inverting gear. The inverting gear changes the movement direction when the unit reaches one of the stops.

These stops are field adjustable so the range of oscillation can be adjusted freely between 15° to 340°. If only one stop is used, the total oscillation is approximately 355°. If both the stops are removed, the rotation of 360° continuously is possible. The oscillating unit can also be purchased separately for retrospective fitting to existing monitor installations. The required oscillating angles must be site configured.

10 Guarantee

For details of warranty, refer to KCA's current list price schedule or contact KCA directly.

11 Inspection, tests and maintenance

NOTICE *The owner is responsible for maintaining the fire protection system and devices in proper operating condition.*

⚠ WARNING *Any system maintenance or testing that involves placing a control valve or detection system out of service may eliminate the fire protection capabilities of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected area.*

Refer to respective requirements, according to the relevant standards for Inspection, Testing and Maintenance. If applicable, refer to FM Global Property Loss Prevention Datasheet 4-12 for specific test and commissioning criteria. In addition, the "Authority Having Jurisdiction" (AHJ) may have additional maintenance, testing and inspection requirements that must be followed.

For manufacturer's recommendations and requirements, please refer to ***Operation & Maintenance Manual TM2.3.5.1***

12 Disposal



At end of use the product described here should be disposed of via the national recycling system. Upon request the manufacturer can take back and properly dispose of the electrical equipment and electronic devices.

13 Accessories and spare parts

Contact KCA for further information

For manufacturer's recommendations and requirements, please refer to ***Operation & Maintenance Manual TM2.3.5.1***

14 Declaration of conformity

If required. Contact KCA for further information.

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