

## HIGH VELOCITY WATER SPRAY NOZZLE

**MODEL: HV-AS & HV-BS**

### TECHNICAL DATA :

MAXIMUM WORKING PRESSURE	12 Bar (175 PSI)	
EFFECTIVE WORKING PRESSURE	3.5 Bar to 10.5 Bar (50 - 150 PSI)	
END CONNECTION	3/4" BSPT (3/4" NPT OPTIONAL)	
MATERIAL	HV-AS Housing & Scroll Brass IS : 291 (Equivalent to ASTM-B21) Strainer - Copper	
	HV-BS Stainless Steel SS316	
INCLUDED WATER SPRAY ANGLE AND K-FACTOR	SPRAY ANGLE	K-FACTOR METRIC (US)
	75°	22 (1.54)
	80°	18 (1.26)
	90°	32 (2.24)
	100°	26 (1.82)
	115°	42 (2.94)
WEIGHT (Approx)	0.200 Kg	
	Natural Finish Nickel Chrome Plated (optional for HV-AS)	
ORDERING INFORMATION	Specify Model, K-Factor, Spray angle and Finish	

### DESCRIPTION

High Velocity Water Spray Nozzles are internal swirl plate type open nozzles designed for use in fixed water spray or deluge system for the fire protection application.

These nozzles produce solid uniform and dense core of high velocity water spray to effect fire control. Nozzles are normally used to cool the surface as well as for extinguishment. High Velocity Water Spray Nozzles are typically used for Deluge protection of special hazards such as oil filled transformers, switch-gear, chemical process equipment, conveyor system and flammable liquid storage areas. The minimum desirable pressure to achieve a reasonable spray pattern is 3.5 Kg./sq.cm. (50 psi). The water distribution pattern is as shown in the graph in following pages giving maximum



effective axial distance from the nozzle. The spray pattern shown is with indoor application. The system designer must consider wind velocity while designing the system for outdoor application. Field obstruction if any affecting the spray pattern of the nozzle must be considered. The nozzle may be oriented in any position as deemed necessary to cover the hazard.

3.5 bar to 7 bar pressure at Nozzle is recommended for effective application requiring high velocity water delivery for rapid extinguishment of all fires by emulsification.

The Nozzles are having inbuilt Strainer, but still main pipeline strainer is required in the system.

The Blow-off cap can be used to prevent the depositing of foreign material in the water way of the nozzle. Use of Blow-off cap is optional and not UL listed.

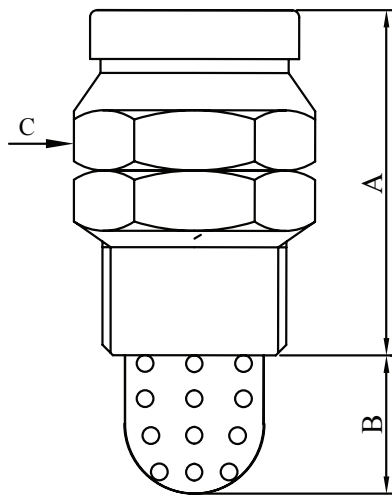
### MAINTENANCE

The spray nozzle must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only.

Nozzle which is visibly damaged should not be installed. Use Teflon tape or soft thread sealant on the male thread of the nozzle.

It is recommended that the water spray system be inspected by authorised technical personnel. The nozzle must be checked for corrosion, external and internal obstruction, blockage if any. The nozzle should be cleaned or replaced if required. The system must be operated with optimum water flow at least three times in a year or as per the provision of NFPA/TAC or local authority having jurisdiction. The owner is solely responsible for maintaining the water spray system and components therein, so that it performs properly when required.

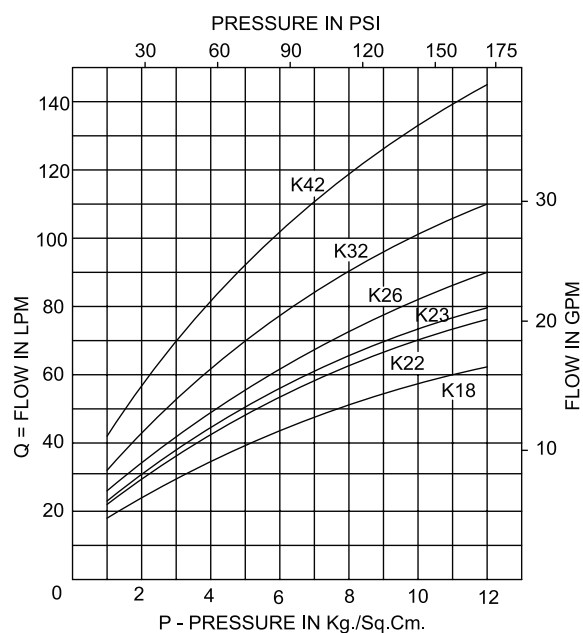
HV-AS



NOZZLE FACTOR & SPRAY ANGLE	A	B	C A/F
K 22 x 75°	49	21	30
K 18 x 80°	44	21	30
K 32 x 90°	49	21	30
K 26 x 100°	55	21	30
K 23 x 120°	49	21	30
K 42 x 115°	49	21	30

DIMENSION In millimeters (Approximate)

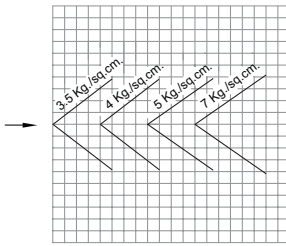
## DISCHARGE CHARACTERISTICS



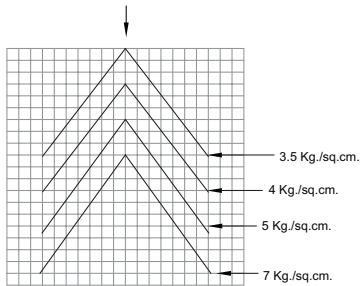
$Q = K \sqrt{P}$  where P is supply pressure in Kg/sq.cm., K= nozzle constant (K-factor) in metric.

## SPRAY PATTERN

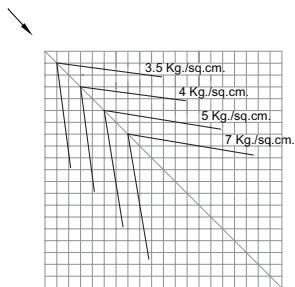
**K22 X 75°**



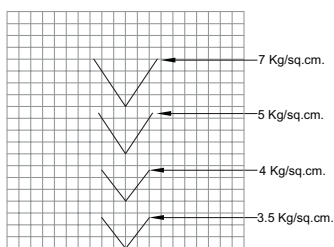
**SPRAY HORIZONTAL**



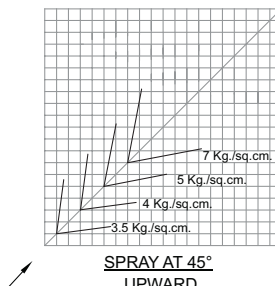
**SPRAY VERTICALLY  
DOWNWARD**



**SPRAY AT 45°  
DOWNWARD**

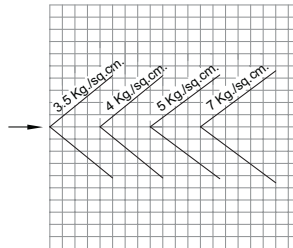


**SPRAY VERTICALLY  
UPWARD**

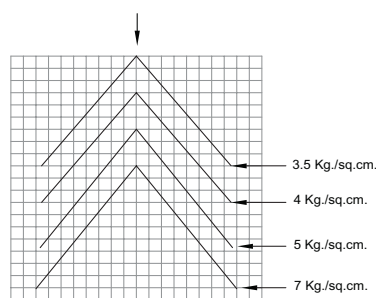


**SPRAY AT 45°  
UPWARD**

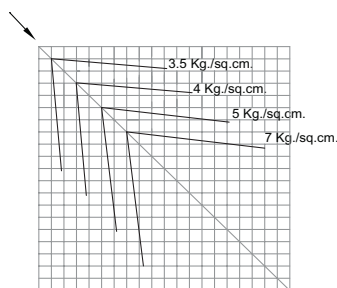
**K18 X 80°**



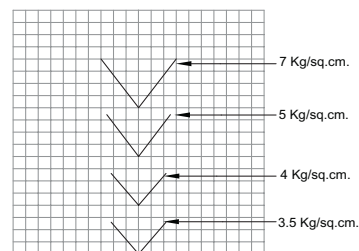
**SPRAY HORIZONTAL**



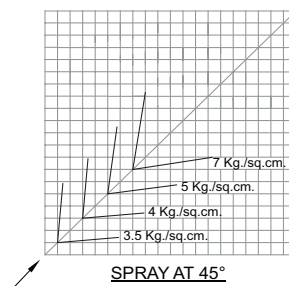
**SPRAY VERTICALLY  
DOWNWARD**



**SPRAY AT 45°  
DOWNWARD**

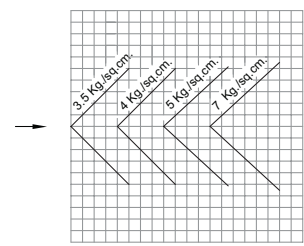


**SPRAY VERTICALLY  
UPWARD**

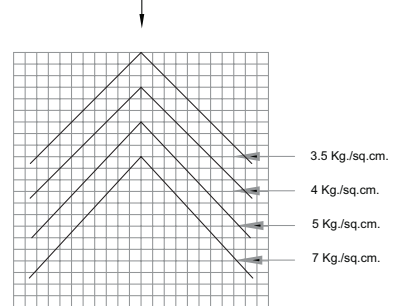


**SPRAY AT 45°  
UPWARD**

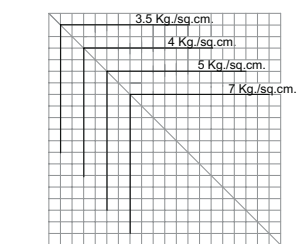
**K32 X 90°**



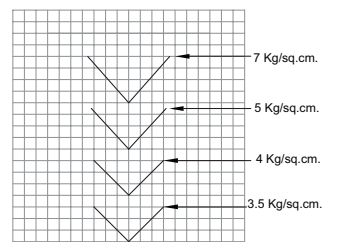
**SPRAY HORIZONTAL**



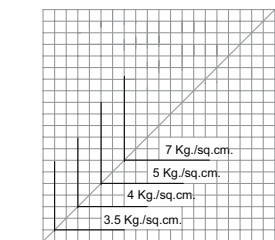
**SPRAY VERTICALLY  
DOWNWARD**



**SPRAY AT 45°  
DOWNWARD**



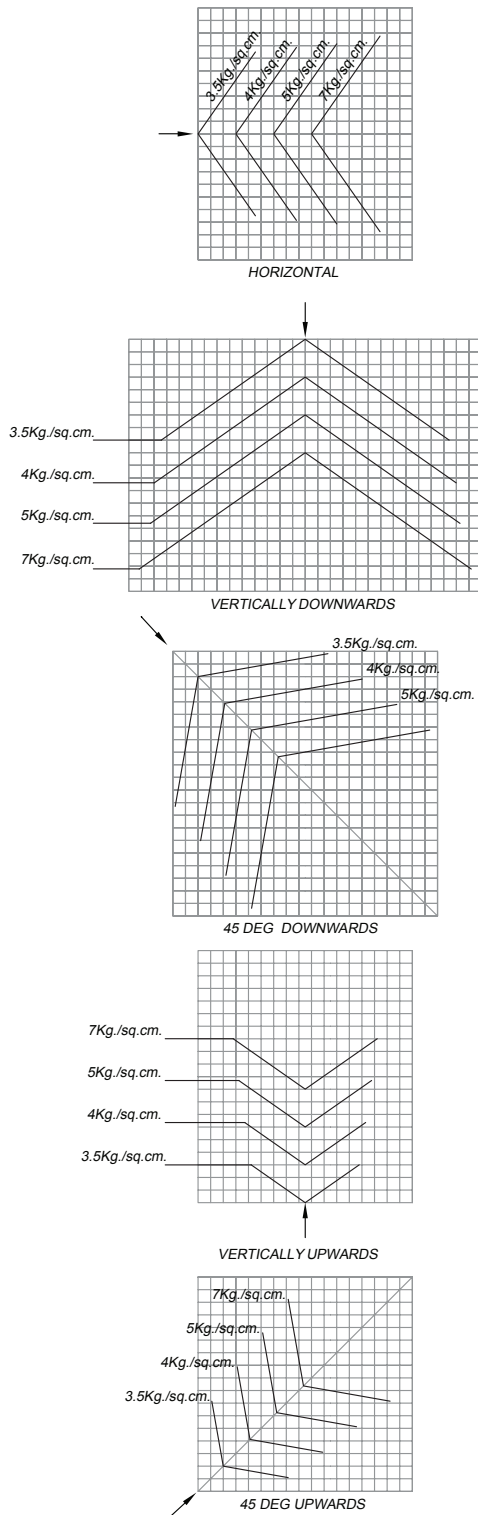
**SPRAY VERTICALLY  
UPWARD**



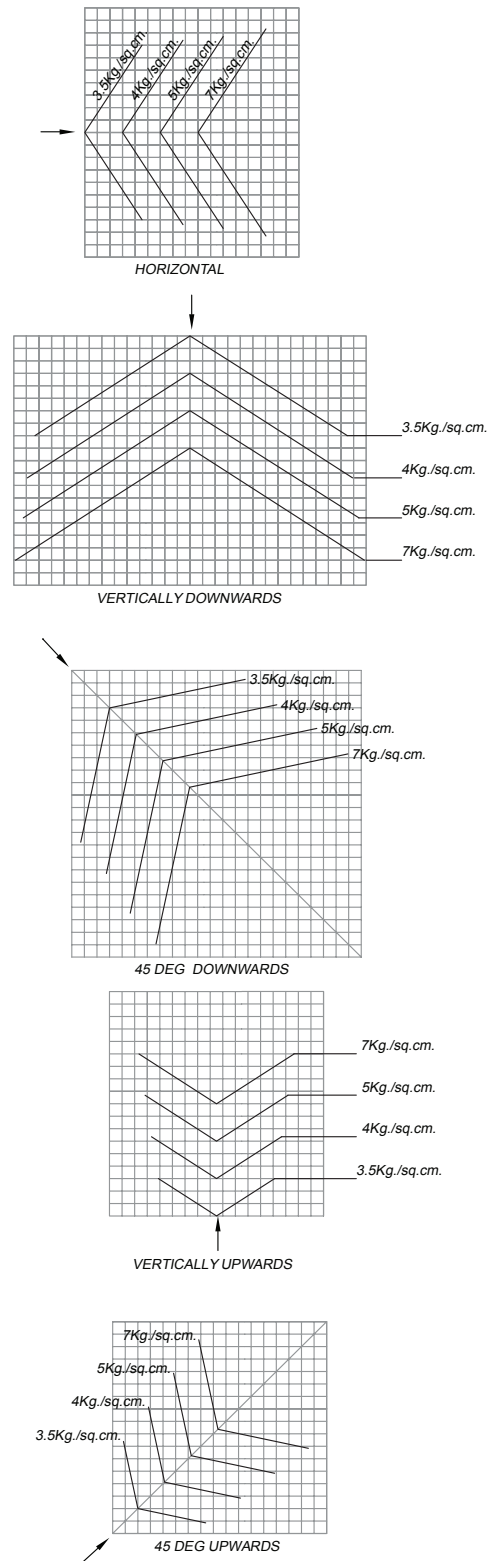
**SPRAY AT 45°  
UPWARD**

Note : One square is 200 X 200 mm.

K42 X 115°

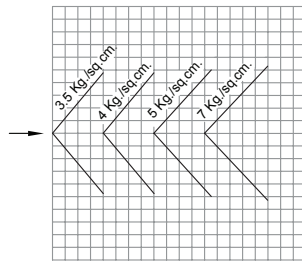


K23 X 120°

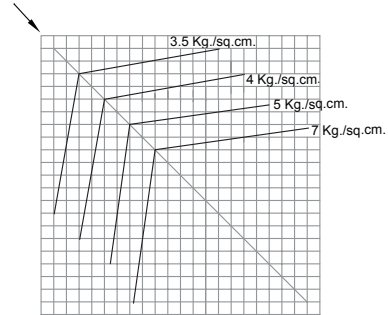


Note : One square is 200 X 200 mm.

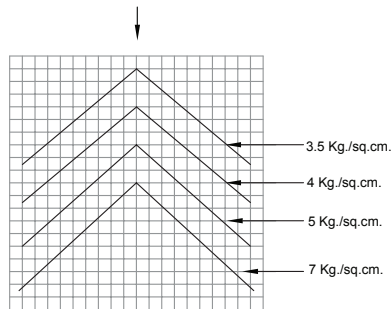
K26 X 100°



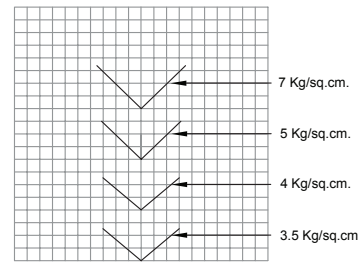
SPRAY HORIZONTAL



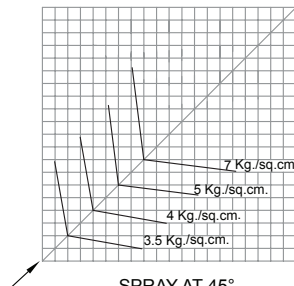
SPRAY AT 45°  
DOWN WARD



SPRAY VERTICALLY  
DOWN WARD



SPRAY VERTICALLY  
UP WARD



SPRAY AT 45°  
UP WARD

Note : One square is 200 X 200 mm.

## HIGH VELOCITY WATER SPRAY NOZZLE

**MODEL: SD-HB Brass**  
**SD-H Stainless Steel**

### TECHNICAL DATA :

MAXIMUM WORKING PRESSURE	12 Bar (175 PSI)	
EFFECTIVE WORKING PRESSURE	2.1 Bar to 6 Bar (30 - 80 PSI)	
END CONNECTION	1" BSPT (1" NPT OPTIONAL)	
MATERIAL	SD-HB Housing & Scroll Brass IS : 291 (Equivalent to ASTM-B21) Strainer - Copper  SD-H SS316 Stainless Steel Housing Strainer - Stainless Steel	
INCLUDED WATER SPRAY ANGLE AND K-FACTOR	SPRAY ANGLE	K-FACTOR METRIC
	75°	61
	90°	78
	100°	48
	100°	58
WEIGHT (Approx)	SD-HB	0.25 Kg
	SD-H	0.22 Kg
FINISH	Brass Finish Nickel Chrome Plated (optional for SD-HB) Natural (For SD-H)	
ORDERING INFORMATION	Specify Model, K-Factor, Spray angle, Finish and end connection	

### DESCRIPTION

High Velocity Water Spray Nozzles are internal swirl plate type open nozzles designed for use in fixed water spray or deluge system for the fire protection application.

These nozzles produce solid uniform and dense core of high velocity water spray to affect fire control. Nozzles are normally used to cool the surface as well as for extinguishment. Nozzles are typically used for Deluge protection of special hazards such as oil filled transformers, switch-gear, chemical process equipment, conveyor system, diesel engines, flammable liquid storage areas and similar hazards. The minimum desirable pressure to achieve a reasonable spray pattern is 2.1 Kg./sq.cm. (30 psi). The water distribution pattern is as shown in the graph



in following pages giving maximum effective axial distance from the nozzle. The spray pattern shown is with indoor application. The system designer must consider wind velocity while designing the system for outdoor application. The spray pattern is drawn considering maximum of 20 Km/hr. Field obstruction if any affecting the spray pattern of the nozzle must be considered. The nozzle may be oriented in any position as deemed necessary to cover the hazard.

2.1 bar to 6 bar pressure at Nozzle is recommended for effective application requiring High Velocity Water delivery for rapid extinguishment of all fires by emulsification.

The Nozzles are having inbuilt Strainer, but still main pipeline strainer is required in the system.

The Blow-off cap can be used to prevent the depositing of foreign material in the water way of the nozzle. Use of Blow-off cap is optional and not UL listed.

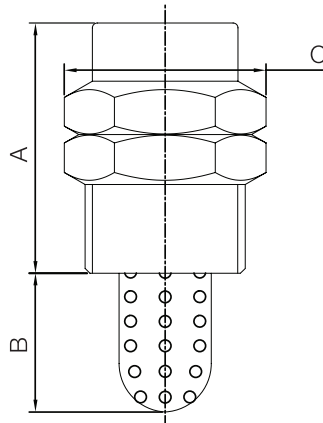
### MAINTENANCE

The spray nozzle must be handled with due care. For best results, the storage as well as any further shipment be made in original packing only.

Nozzle which is visibly damaged should not be installed. Use Teflon tape or soft thread sealant on the male thread of the nozzle.

It is recommended that the water spray system be inspected by authorised technical personnel. The nozzle must be checked for corrosion, external and internal obstruction, blockage if any. The nozzle should be cleaned or replaced if required. The system must be operated with optimum water flow at least three times in a year or as per the provision of NFPA/TAC or local authority having jurisdiction.

The owner is solely responsible for maintaining the water spray system and components therein, so that it performs properly when required.



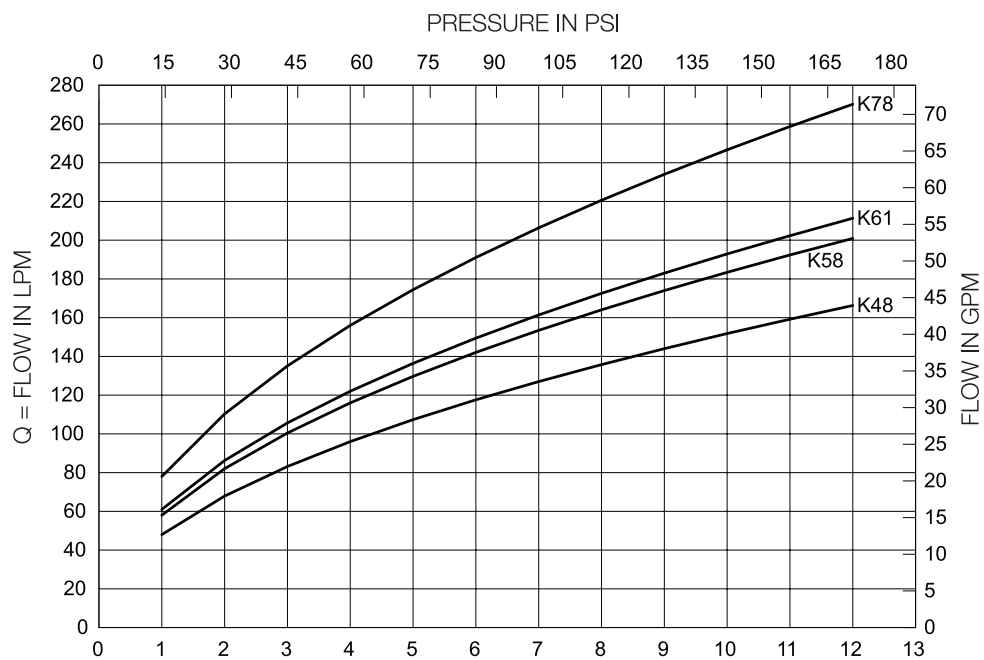
MATERIAL		
PART	SD-HB	SD-H
Body	Brass*	Stainless Steel CF8M
Swirl Plate	Brass*	SS 316
Strainer	Copper	SS 316

\* Brass IS291 equivalent to B21

NOZZLE FACTOR & SPRAY ANGLE	A	B	C A/F
K 48 x 100°	52	29	36
K 58 x 100°	52	29	36
K 61 x 75°	52	29	36
K 78 x 90°	52	29	36

DIMENSION In millimeters (Approximate)

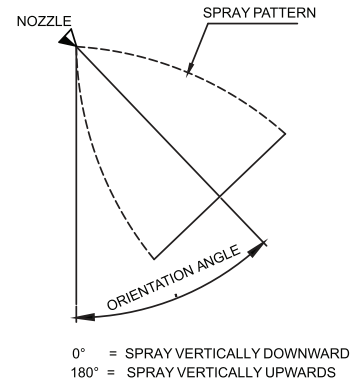
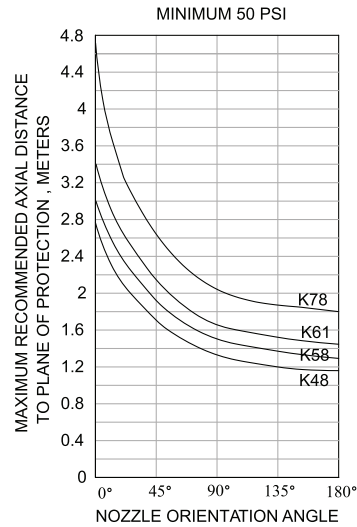
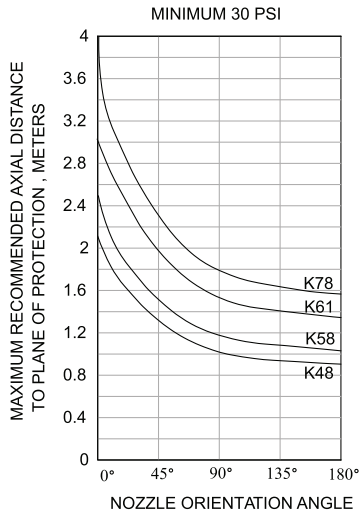
## DISCHARGE CHARACTERISTICS



P - PRESSURE IN Kg./Sq.Cm.

$Q = K \sqrt{P}$  where P is supply pressure in Kg/sq.cm., K = nozzle constant (K-factor) in metric  
US K factor = Metric K factor ÷ 14.2745

## MAXIMUM RECOMMENDED AXIAL DISTANCE VS NOZZLE ORIENTATION



## SPRAY PATTERN

