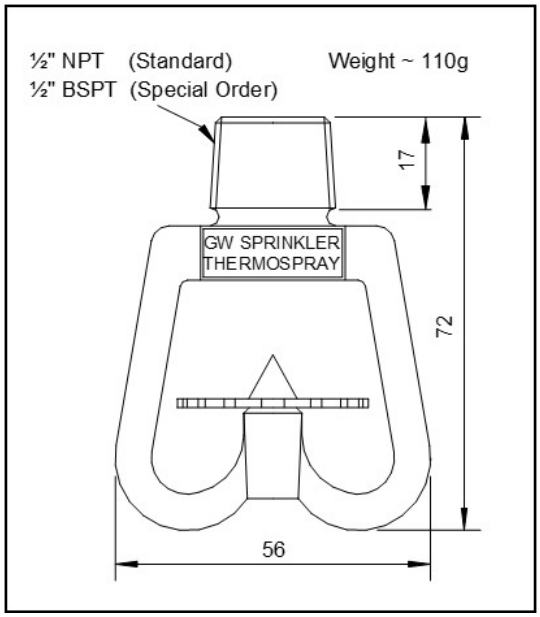
GW
THERMOSPRAY NOZZLE (OPEN)
MEDIUM VELOCITY

GW SPRINKLER A/S

Thermospray Standard Nozzle Range				
K–Factor (Metric) Tol. ± 6%	**K–Factor** (US) Tol. ± 6%	**Thread** (Male)	**Approval**	**Spray Angle** Tol. +0 / -10°
19 *)	1.31 *)	1/2" NPT	FM APPROVED See Note	60°
27 *)	1.86 *)	1/2" NPT		80°
33	2.27	1/2" NPT		100°
42	2.89	1/2" NPT		120°
61	4.20	1/2" NPT		140°
80	5.60	1/2" NPT		160°
98	6.75	1/2" NPT		
109	7.54	1/2" NPT		
120	8.30	1/2" NPT		

Recommended working pressure		
Min.	1,4 bar	20 PSI
Max.	4,1 bar	60 PSI

NOTE: Lloyds Register (LR): Applications *limitation* according to Certificate Of Fire Approval.
Only LR certified for applications **outside** the scope of Statutory Regulations.



Material	**Grade** (or similar)
Brass	DZR / CW602N / UNS C35330
Nickel Aluminium Bronze	CW307G / UNS C63000 DEFLECTOR: CW451K / UNS C51000
Stainless Steel, SS316	AISI 316 / EN 1.4401 / UNS S31600
Stainless Steel, SMO	EN 1.4547 / UNS S31254 / 254SMO
Titanium	ASTM B367 Gr. C2 / UNS R50400

***) Strainer requirement**

Nozzles with K19 (US 1.31) and K27 (US 1.86) have orifices with a diameter less than Ø8,7 mm – and shall according to FM Class 2021/2025 be provided with either an individual, integral or main-line strainer.

NOTE :
When ordering, please specify if the nozzle is required with an inlet strainer fitted !
(a strainer fitted is not standard).

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Data sheet no.: **WS 005 1003 D**

Data sheet: **GW Thermospray Nozzle**

Date: 23 May 2016

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GENERAL DESCRIPTION

The GW Thermospray medium velocity nozzle is designed for directional spray applications in fixed water spray (deluge) systems. The angle of the external deflector determines the direction and shape of the water spray, consisting of low to medium velocity droplets.

The GW Thermospray nozzle is available in a variety of K-factors and materials to meet most land based and off shore design application requirements. Also available with protective plating – e.g. ENP (electroless nickel plating). Consult GW Sprinkler for available options.

The GW Thermospray nozzle is effective in covering exposed vertical, horizontal and irregular shaped surfaces in a cooling water spray to prevent excessive absorption of heat from an external fire, protecting e.g. structural steel constructions from damage and preventing potential collapse. In some applications the GW Thermospray nozzle may also be used for fire control and extinguishment, depending on water density design requirements.

SYSTEM DESIGN AND INSTALLATION

The GW Thermospray nozzle is designed to be installed in accordance with recognized installation standards, e.g. the latest published standards of NFPA, FM Global, LPCB, VdS or similar organisations. If in doubt – consult the AHJ (Authority Having Jurisdiction) prior to system design and installation.

The system design of water spray fixed systems should only be performed by experienced designers who thoroughly understand the capabilities and limitations of such systems and their individual components.

Deviations from the standards – or any alteration to the nozzle after it leaves the factory including, but not limited to: painting, plating, coating, or modification may render the product inoperative and will automatically nullify the approval and any guarantee made by GW Sprinkler A/S.

1. Handle the GW Thermospray nozzle with care, and store it dry in its original shipping container. Never install a water spray nozzle that has been dropped or damaged. Never re-install previously installed nozzles.
2. Corrosion resistant nozzles must be installed when subject to corrosive atmospheres.
3. Nozzles must be installed after the piping is in place, to prevent mechanical damage.
4. Before installation, make sure that appropriate nozzle model and style, with correct K-factor, spray angle and material is selected for the job.

    a. Apply a small amount of pipe joint compound or tape to the external threads of the nozzle, taking care not to allow a build-up of compound inside the inlet.

    b. Hand-tighten the nozzle into the fitting. **Do not** use the deflector to start or thread the nozzle into a fitting.

    c. Use a suitable wrench to finally install and tighten the nozzle, applying a min. to max. torque of 9,5 to 19 Nm. Higher levels of torque can distort the nozzle inlet with consequent impairment of the nozzle.

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INSPECTION, TEST AND MAINTENANCE

The owner is responsible for maintaining the fire protection system in proper operating condition. For minimum maintenance and inspection requirements, refer to relevant standards – e.g. NFPA 25, that describes maintenance and inspection of sprinkler / water spray systems. In addition the AHJ may have additional maintenance, testing and inspection requirements that must be followed.

1. Spray nozzles must be inspected on a regular basis for corrosion, mechanical damage, obstructions (plugging of water way), paint, etc. The frequency of inspections may vary due to corrosive atmospheres, water supplies and activity around the nozzles.

2. Spray nozzles that have been painted or mechanically damaged must be replaced immediately. Nozzles showing signs of corrosion shall be tested for proper operation, and/or replaced immediately as required. Care must be taken to ensure that the replacement nozzle has the proper model, style and K-factor. A cabinet should be provided and stocked with a suitable wrench and extra spray nozzles of each variety used for replacement purposes.

3. The spray nozzle discharge pattern is critical for proper fire protection. Hence, nothing should be hung from, attached to, or otherwise obstruct the discharge pattern. All obstructions must be immediately removed or, if necessary, additional nozzles installed.

4. Fire protection systems that have been subject to a fire must be returned to service as soon as possible. The entire system must be inspected for damage and repaired or replaced as necessary. Spray nozzles that have been exposed to corrosive products of combustion or high ambient temperatures, should be replaced.

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Part numbers

K19 (U.S. 1.31)						
Material	**60°**	**80°**	**100°**	**120°**	**140°**	**160°**
Brass	D101910060N	D101910080N	D101910100N	D101910120N	D101910140N	D101910160N
Alubronze	D101970060N	D101970080N	D101970100N	D101970120N	D101970140N	D101970160N
SS316	D101920060N	D101920080N	D101920100N	D101920120N	D101920140N	D101920160N
SMO	D101990060N	D101990080N	D101990100N	D101990120N	D101990140N	D101990160N
Titanium	D101980060N	D101980080N	D101980100N	D101980120N	D101980140N	D101980160N
K27 (U.S. 1.86)						
Material	**60°**	**80°**	**100°**	**120°**	**140°**	**160°**
Brass	D102710060N	D102710080N	D102710100N	D102710120N	D102710140N	D102710160N
Alubronze	D102770060N	D102770080N	D102770100N	D102770120N	D102770140N	D102770160N
SS316	D102720060N	D102720080N	D102720100N	D102720120N	D102720140N	D102720160N
SMO	D102790060N	D102790080N	D102790100N	D102790120N	D102790140N	D102790160N
Titanium	D102780060N	D102780080N	D102780100N	D102780120N	D102780140N	D102780160N
K33 (U.S. 2.27)						
Material	**60°**	**80°**	**100°**	**120°**	**140°**	**160°**
Brass	D103310060N	D103310080N	D103310100N	D103310120N	D103310140N	D103310160N
Alubronze	D103370060N	D103370080N	D103370100N	D103370120N	D103370140N	D103370160N
SS316	D103320060N	D103320080N	D103320100N	D103320120N	D103320140N	D103320160N
SMO	D103390060N	D103390080N	D103390100N	D103390120N	D103390140N	D103390160N
Titanium	D103380060N	D103380080N	D103380100N	D103380120N	D103380140N	D103380160N
K42 (U.S. 2.89)						
Material	**60°**	**80°**	**100°**	**120°**	**140°**	**160°**
Brass	D104210060N	D104210080N	D104210100N	D104210120N	D104210140N	D104210160N
Alubronze	D104270060N	D104270080N	D104270100N	D104270120N	D104270140N	D104270160N
SS316	D104220060N	D104220080N	D104220100N	D104220120N	D104220140N	D104220160N
SMO	D104290060N	D104290080N	D104290100N	D104290120N	D104290140N	D104290160N
Titanium	D104280060N	D104280080N	D104280100N	D104280120N	D104280140N	D104280160N
K61 (U.S. 4.20)						
Material	**60°**	**80°**	**100°**	**120°**	**140°**	**160°**
Brass	D106110060N	D106110080N	D106110100N	D106110120N	D106110140N	D106110160N
Alubronze	D106170060N	D106170080N	D106170100N	D106170120N	D106170140N	D106170160N
SS316	D106120060N	D106120080N	D106120100N	D106120120N	D106120140N	D106120160N
SMO	D106190060N	D106190080N	D106190100N	D106190120N	D106190140N	D106190160N
Titanium	D106180060N	D106180080N	D106180100N	D106180120N	D106180140N	D106180160N

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K80 (U.S. 5.60)						
Material	**60°**	**80°**	**100°**	**120°**	**140°**	**160°**
Brass	D108010060N	D108010080N	D108010100N	D108010120N	D108010140N	D108010160N
Alubronze	D108070060N	D108070080N	D108070100N	D108070120N	D108070140N	D108070160N
SS316	D108020060N	D108020080N	D108020100N	D108020120N	D108020140N	D108020160N
SMO	D108090060N	D108090080N	D108090100N	D108090120N	D108090140N	D108090160N
Titanium	D108080060N	D108080080N	D108080100N	D108080120N	D108080140N	D108080160N
K98 (U.S. 6.75)						
Material	**60°**	**80°**	**100°**	**120°**	**140°**	**160°**
Brass	D109810060N	D109810080N	D109810100N	D109810120N	D109810140N	D109810160N
Alubronze	D109870060N	D109870080N	D109870100N	D109870120N	D109870140N	D109870160N
SS316	D109820060N	D109820080N	D109820100N	D109820120N	D109820140N	D109820160N
SMO	D109890060N	D109890080N	D109890100N	D109890120N	D109890140N	D109890160N
Titanium	D109880060N	D109880080N	D109880100N	D109880120N	D109880140N	D109880160N
K109 (U.S. 7.54)						
Material	**60°**	**80°**	**100°**	**120°**	**140°**	**160°**
Brass	D110910060N	D110910080N	D110910100N	D110910120N	D110910140N	D110910160N
Alubronze	D110970060N	D110970080N	D110970100N	D110970120N	D110970140N	D110970160N
SS316	D110920060N	D110920080N	D110920100N	D110920120N	D110920140N	D110920160N
SMO	D110990060N	D110990080N	D110990100N	D110990120N	D110990140N	D110990160N
Titanium	D110980060N	D110980080N	D110980100N	D110980120N	D110980140N	D110980160N
K120 (U.S. 8.30)						
Material	**60°**	**80°**	**100°**	**120°**	**140°**	**160°**
Brass	D112010060N	D112010080N	D112010100N	D112010120N	D112010140N	D112010160N
Alubronze	D112070060N	D112070080N	D112070100N	D112070120N	D112070140N	D112070160N
SS316	D112020060N	D112020080N	D112020100N	D112020120N	D112020140N	D112020160N
SMO	D112090060N	D112090080N	D112090100N	D112090120N	D112090140N	D112090160N
Titanium	D112080060N	D112080080N	D112080100N	D112080120N	D112080140N	D112080160N
Material	**60°**	**80°**	**100°**	**120°**	**140°**	**160°**
Brass						
Alubronze						
SS316						
SMO						
Titanium						

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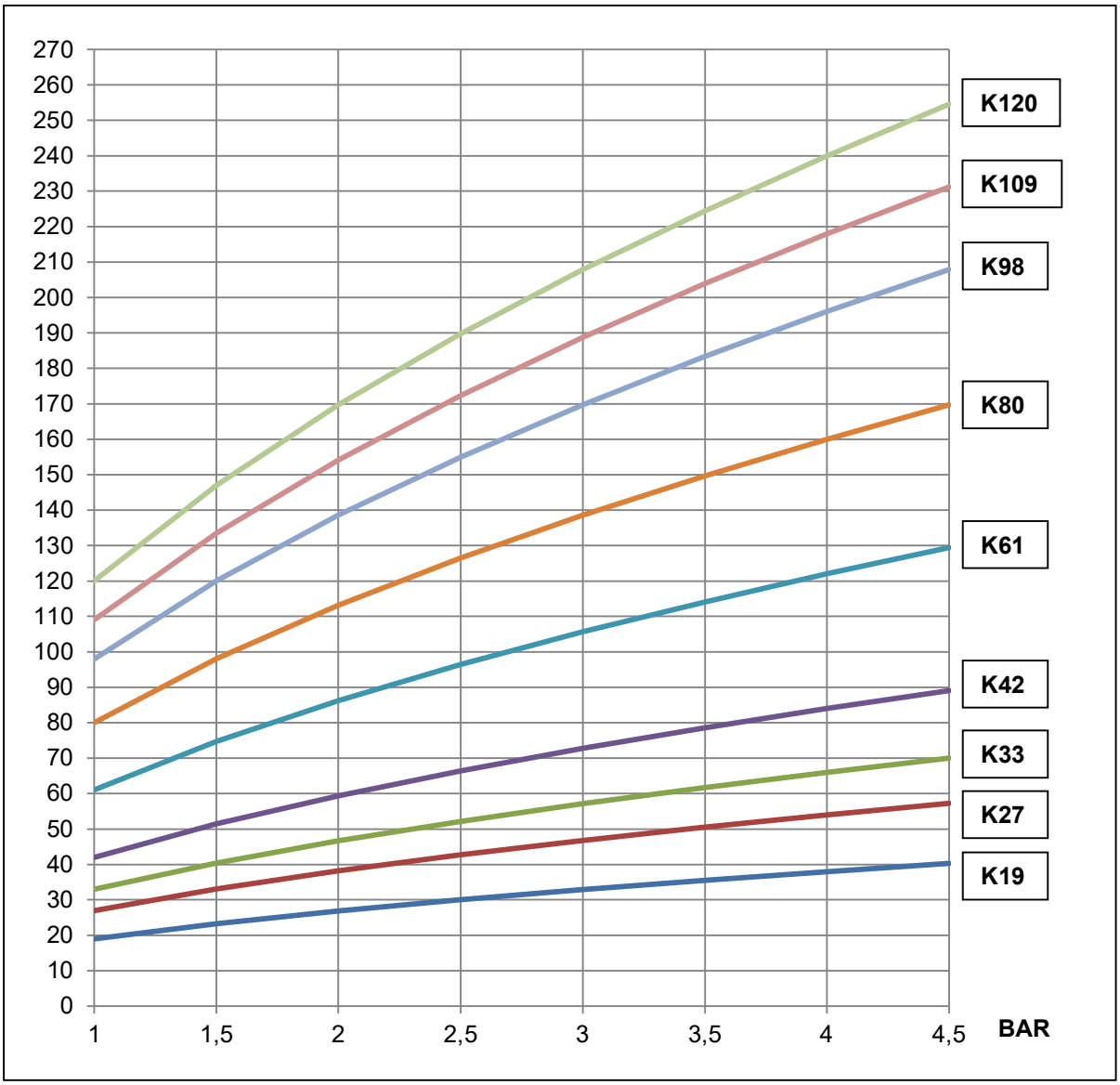
Pressure / Flow



The pressure / flow relation is calculated based on the formula: **Q = K x √P**

Q = flow (l/min)
K = nozzle K-factor (discharge coefficient)
P = water pressure at nozzle (Barg)

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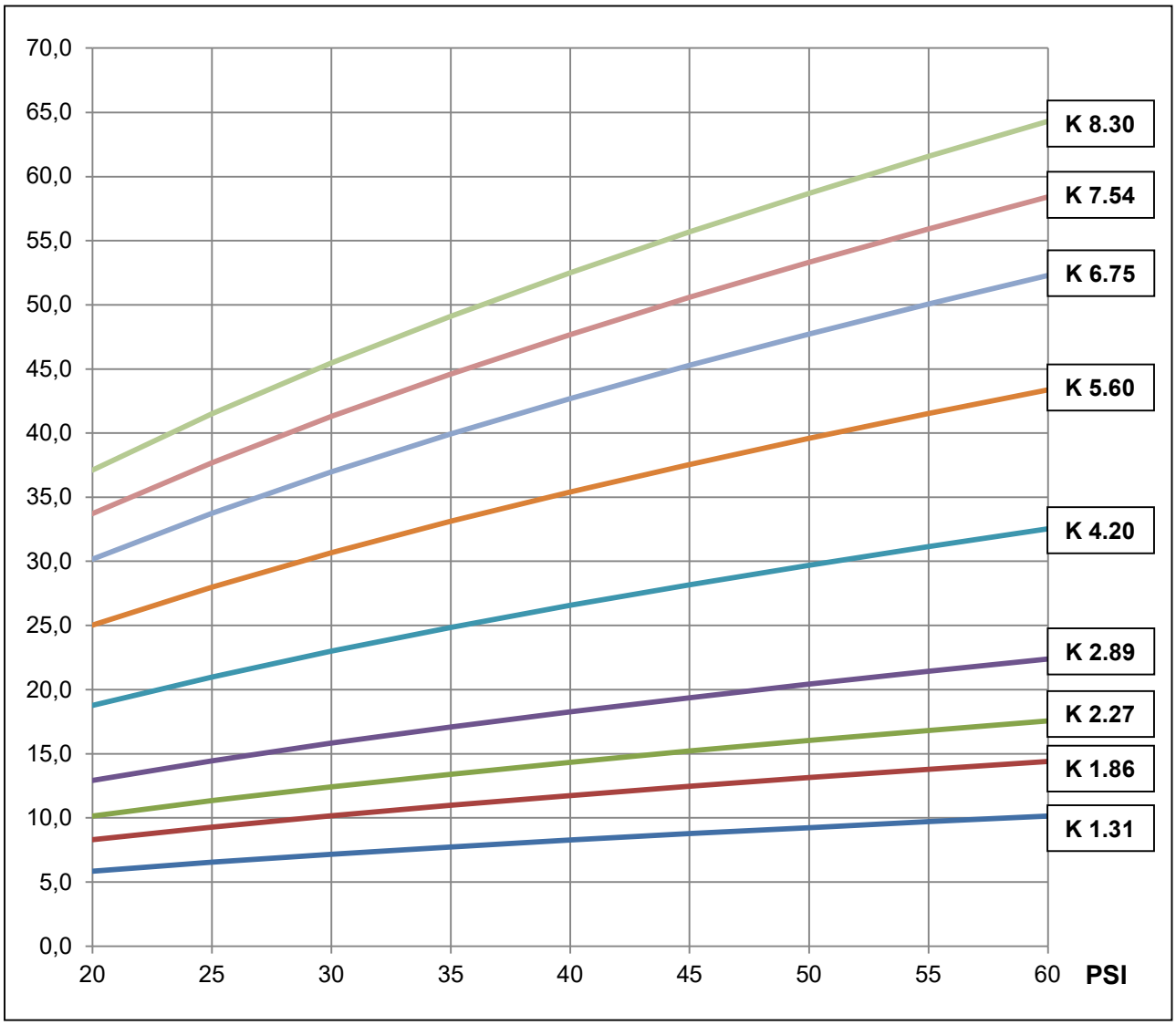
Pressure / Flow (U.S)



The pressure / flow relation is calculated based on the formula: **Q = K x √P**

Q = flow (US gal/min)
K = nozzle K-factor (discharge coefficient)
P = water pressure at nozzle (PSI)

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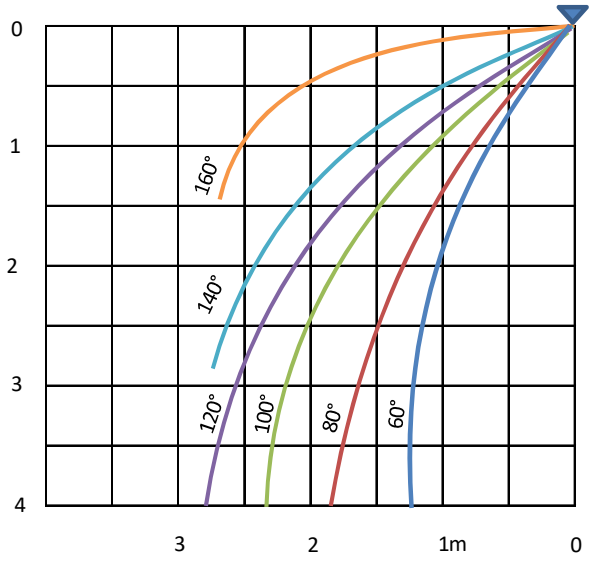
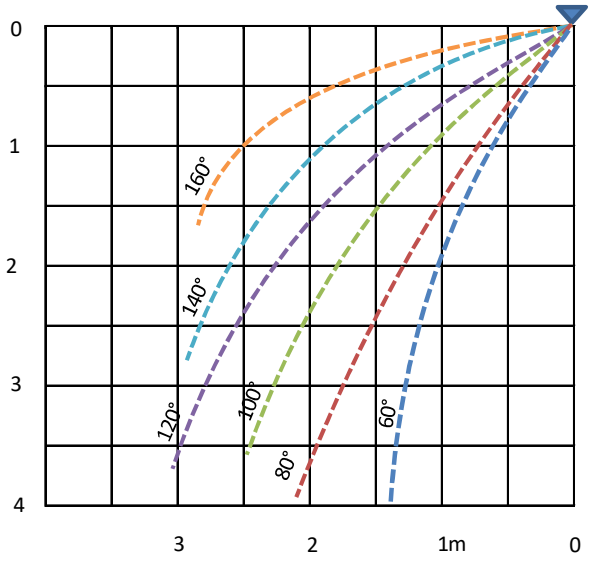
Spray Profile – vertical down

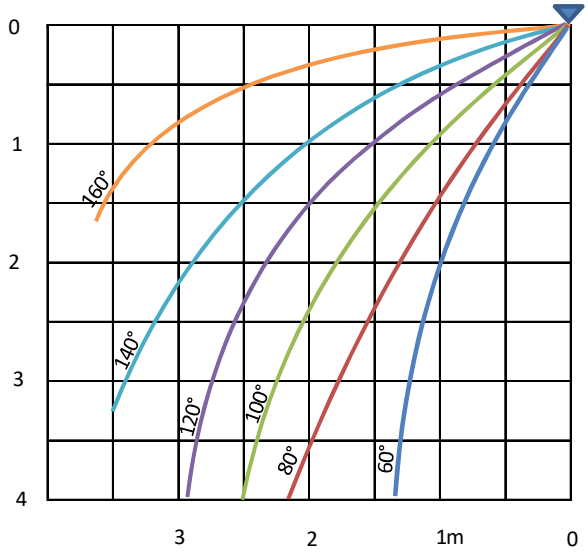
K19 – K33 (1,4 bar)



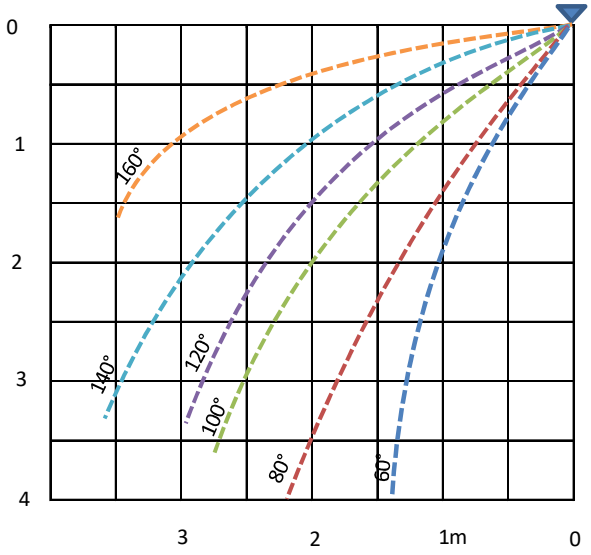
K19 – K33 (4,1 bar)



K42 – K120 (1,4 bar)



K42 – K120 (4,1bar)



Horizontal spray profiles: see data sheet: WS 005 1003.1 A

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