



SPRINKLER SPRAY PATTERNS

Refer to the General Description section before applying the spray pattern data

General Description

Information for the Sprinkler Spray Patterns provided in this document is presented in one of four methods:

- Spray Profile Pattern
- Cross Sectional Pattern
- Wall Wetting Pattern
- Average Applied Density

For each method a representative sample of a Tyco sprinkler was installed and data was collected accordingly.

Spray Profile Patterns

For the Spray Profile method, water was collected at a variety of elevations below the representative sprinkler via a turntable apparatus similar to the “10 Pan Distribution Test” described in UL199. Consequently, the profiles are a radial averaging that tend to negate the normal unevenness of the actual sprinkler spray pattern (due for example to frame arm shadow and/or pipe line shadow). This technique most reasonably lends itself to standard spray upright and pendent sprinklers, since it provides information as to how the sprinkler’s applied density varies from its center towards its theoretical outside diameter.

Cross Sectional Patterns

For the Cross Sectional method, and as the name implies, the data provides spray patterns at various sections

through the representative sprinkler’s spray distribution. This technique allows for documenting complex spray distribution patterns, as in the case of standard coverage horizontal sidewall sprinklers. Studying these patterns reveals the actual contour of the upper limit of spray as opposed to the typical spray representation of a single line on a two-dimensional graph.

Wall Wetting Patterns

For the Wall Wetting method, the representative sprinkler sample was sprayed within rooms that were equivalent in size to various coverage areas, and at corresponding flow rates. The wetting of the walls was then documented. While this type of data requires interpolation between coverage areas and flow rates, it is considered to be the best way to portray the intricacies of extended coverage and residential type sprinkler spray patterns.

Average Applied Densities

For the Average Applied Density method, water was collected at a variety of elevations below the representative sprinkler via a turntable apparatus similar to the “10 Pan Distribution Test” described in UL199. However, because certain sprinklers do not discharge all of the water in a downward direction, such as Conventional “Old Style” Sprinklers that spray approximately 40% of their discharge pattern in an upward direction, the data as collected could not be used to generate traditional spray profiles. Therefore, the data is presented in a tabular fashion that documents the cumulative Average Applied Density of both the water directed downward and the water returning downward after having initially been discharged upward.

No matter what the method of data presentation, the effects of various deflector to ceiling distances, flowing pressures other than those shown, obstruction to water distribution, ventilation, and sample to sample variation are not included. The method chosen to portray the sprinkler distribution is based on giving the sprinkler designer the quickest reference as to the overall spray pattern in a laboratory environment and may not reflect actual conditions experienced in the field.



NOTE: Specific distances below the ceiling are shown for reference only. All data are based upon spray tests conducted with sprinklers located as noted, all within installation ranges allowable per agency Listings or Approvals.

NOTICE

Sprinklers are designed and laboratory approved to meet specific spray distribution requirements. The Sprinkler Spray Pattern data provided in this document represents only a portion of the overall spray distribution characteristics used by approval laboratories for determining applicability to a specific installation standards, e.g., NFPA 13, *Installation of Sprinkler Systems*. Deviation from recognized installation rules must be approved by the authority having jurisdiction.

IMPORTANT

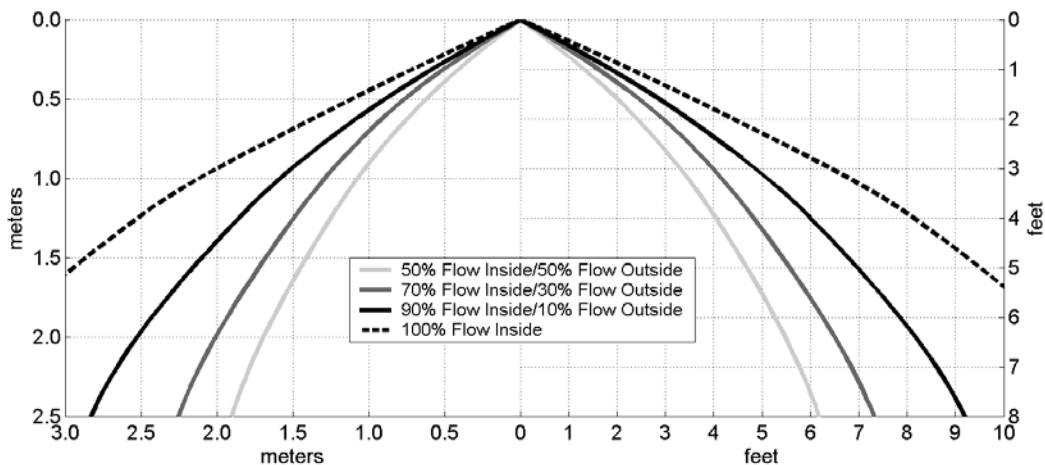
Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.

Always refer to Technical Data Sheet TFP700 for the “INSTALLER WARNING” that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.

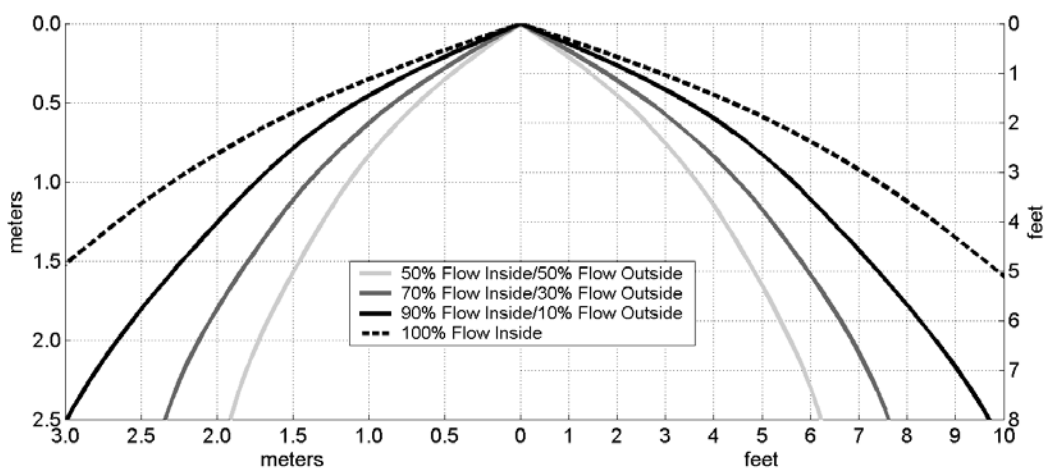
Table of Contents								
SIN	Model	K-factor	Type	Data Sheet	Page			
					Spray Profile Pattern	Cross Section Pattern	Wall Wetting Pattern	Average Applied Density
TY1121	TY-FRL	2.8k (K40)	Std. Coverage Upright	TFP130	4			
TY1131	TY-FRB	2.8k (K40)	Std. Coverage Upright	TFP171	5			
TY1151	TY-B	2.8k (K40)	Std. Coverage Upright	TFP151	5			
TY1221	TY-FRL	2.8k (K40)	Std. Coverage Pendent	TFP130	6			
TY1231	TY-FRB	2.8k (K40)	Std. Coverage Pendent	TFP171	7			
TY1251	TY-B	2.8k (K40)	Std. Coverage Pendent	TFP151	7			
TY1334	LFII	4.2k (K60)	Residential Horizontal Sidewall	TFP410			48	
TY2108	TY-B	3.9k (K58)	Upright	TFP670	8			
TY2109	TY-FRB	3.9k (K58)	Upright	TFP670	8			
TY2131	TY-FRB	4.2k (K60)	Std. Coverage Upright	TFP171	10			
TY2149	TY-B	3.9k (K57)	Std. Coverage Upright	TFP672	8			
TY2208	TY-B	3.9k (K58)	Pendent	TFP670	9			
TY2209	TY-FRB	3.9k (K58)	Pendent	TFP670	9			
TY2231	TY-FRB	4.2k (K60)	Std. Coverage Pendent	TFP171	11			
TY2234	LFII	4.9k (K70)	Residential Pendent	TFP400			49	
TY2249	TY-B	3.9k (K57)	Std. Coverage Pendent	TFP672	9			
TY3111	TY-L	5.6k (K80)	Std. Coverage Upright	TFP110	12			
TY3121	TY-FRL	5.6k (K80)	Std. Coverage Upright	TFP130	13			
TY313	TY-FRB	5.6k (K80)	Std. Coverage Upright	TFP172	14			63
TY3131	TY-FRB	5.6k (K80)	Std. Coverage Upright	TFP171	15			
TY3141	TY-B (4mm)	5.6k (K80)	Std. Coverage Upright	TFP672	15			
TY315	TY-B	5.6k (K80)	Std. Coverage Upright	TFP152	14			63
TY3151	TY-B	5.6k (K80)	Std. Coverage Upright	TFP151	15			
TY3211	TY-L	5.6k (K80)	Std. Coverage Pendent	TFP110	16			
TY3221	TY-FRL	5.6k (K80)	Std. Coverage Pendent	TFP130	17			
TY323	TY-FRB	5.6k (K80)	Std. Coverage Pendent	TFP172	18			64
TY3231	TY-FRB	5.6k (K80)	Std. Coverage Pendent	TFP171	19			
TY3241	TY-B (4mm)	5.6k (K80)	Std. Coverage Pendent	TFP672	19			
TY325	TY-B	5.6k (K80)	Std. Coverage Pendent	TFP152	18			64
TY3251	TY-B	5.6k (K80)	Std. Coverage Pendent	TFP151	19			
TY3311	TY-L	5.6k (K80)	Std. Coverage Horizontal Sidewall	TFP120		43		
TY3321	TY-FRL	5.6k (K80)	Std. Coverage Horizontal Sidewall	TFP140		44		
TY3322	TY-FRL	5.6k (K80)	Ext. Coverage Horizontal Sidewall	TFP280			50	
TY3330	EC-HS	K80	Ext. Coverage Horizontal Sidewall	TFP288			51	
TY3331	TY-FRB	5.6k (K80)	Std. Coverage Horizontal Sidewall	TFP176		45		
TY3332	TY-FRB	5.6k (K80)	Ext. Coverage Horizontal Sidewall	TFP296			52	
TY3351	TY-B	5.6k (K80)	Std. Coverage Horizontal Sidewall	TFP161		45		
TY3431	TY-FRB	5.6k (K80)	Std. Coverage Vert. Sidewall (Upright)	TFP176		46		
TY3431	TY-FRB	5.6k (K80)	Std. Coverage Vert. Sidewall (Pendent)	TFP176		47		
TY3451	TY-B	5.6k (K80)	Std. Coverage Vert. Sidewall (Upright)	TFP161		46		
TY3451	TY-B	5.6k (K80)	Std. Coverage Vert. Sidewall (Pendent)	TFP161		47		
TY3531	RFII	5.6k (K80)	Std. Cov. QR Concealed Pendent	TFP181	20			
TY3532	RFII	5.6k (K80)	Ext. Cov. Concealed Pendent	TFP260	20			
TY3551	RFII	5.6k (K80)	Std. Cov. SR Concealed Pendent	TFP181	20			
TY363	TY-FRB	5.6k (K80)	Conventional "Old Style" (Upright)	TFP667	22			59

Table of Contents								
SIN	Model	K-factor	Type	Data Sheet	Page			
					Spray Profile Pattern	Cross Sectional Pattern	Wall Wetting Pattern	Average Applied Density
TY363	TY-FRB	5.6k (K80)	Conventional "Old Style" (Pendent)	TFP667	21			60
TY3631	TY-FRB	5.6k (K80)	Conventional "Old Style" (Upright)	TFP666	24			61
TY3631	TY-FRB	5.6k (K80)	Conventional "Old Style" (Pendent)	TFP666	23			62
TY3641	TY-B (4mm)	5.6k (K80)	Conventional "Old Style" (Upright)	TFP661	24			61
TY3641	TY-B (4mm)	5.6k (K80)	Conventional "Old Style" (Pendent)	TFP661	23			62
TY365	TY-B	5.6k (K80)	Conventional "Old Style" (Upright)	TFP662	22			59
TY365	TY-B	5.6k (K80)	Conventional "Old Style" (Pendent)	TFP662	21			60
TY3651	TY-B	5.6k (K80)	Conventional "Old Style" (Upright)	TFP661	24			61
TY3651	TY-B	5.6k (K80)	Conventional "Old Style" (Pendent)	TFP661	23			62
TY4111	TY-L	8.0k (K115)	Std. Coverage Upright	TFP110	25			
TY4121	TY-FRL	8.0k (K115)	Std. Coverage Upright	TFP130	26			
TY4131	TY-FRB	8.0k (K115)	Std. Coverage Upright	TFP171	27			
TY4141	TY-B (4mm)	8.0k (K115)	Std. Coverage Upright	TFP672	27			
TY4151	TY-B	8.0k (K115)	Std. Coverage Upright	TFP151	27			
TY4211	TY-L	8.0k (K115)	Std. Coverage Pendent	TFP110	28			
TY4221	TY-FRL	8.0k (K115)	Std. Coverage Pendent	TFP130	29			
TY4231	TY-FRB	8.0k (K115)	Std. Coverage Pendent	TFP171	30			
TY4241	TY-B (4mm)	8.0k (K115)	Std. Coverage Pendent	TFP672	30			
TY4251	TY-B	8.0k (K115)	Std. Coverage Pendent	TFP151	30			
TY4322	TY-FRL	8.0k (K115)	Ext. Coverage Horizontal Sidewall	TFP280			53	
TY4332	TY-FRB	8.0k (K115)	Ext. Coverage Horizontal Sidewall	TFP296			54	
TY5111	ELO-231	11.2k (K160)	Std. Coverage Upright	TFP340	31			
TY5131	ELO-231FRB	11.2k (K160)	Std. Coverage Upright	TFP344	31			
TY5137	EC-11	11.2k (K160)	Ext. Coverage Upright	TFP220	57			65
TY5151	ELO-231B	11.2k (K160)	Std. Coverage Upright	TFP342	31			
TY5211	ELO-231	11.2k (K160)	Std. Coverage Pendent	TFP340	32			
TY5231	ELO-231FRB	11.2k (K160)	Std. Coverage Pendent	TFP344	32			
TY5237	EC-11	11.2k (K160)	Ext. Coverage Pendent	TFP220	58			66
TY5251	ELO-231B	11.2k (K160)	Std. Coverage Pendent	TFP342	32			
TY5332	SW-20	11.2k (K160)	Ext. Coverage Horizontal Sidewall	TFP230			55	
TY5337	SW-24	11.2k (K160)	Ext. Coverage Horizontal Sidewall	TFP230			56	
TY6137	EC-14	14.0k (K200)	Ext. Coverage Upright	TFP220	57			67
TY6226	ESFR-1	14.0k (K200)	ESFR Pendent	TFP318	35			71
TY6236	ESFR-14	14.0k (K200)	ESFR Pendent	TFP319	36			72
TY6237	EC-14	14.0k (K200)	Ext. Coverage Pendent	TFP220	58			68
TY7103	Ultra K17	16.8k (K240)	CMSA Upright	TFP331	33			69
TY7126	ESFR-17	16.8k (K240)	ESFR Upright	TFP316	37			73
TY7151	K17-231	16.8k (K240)	Std. Coverage Upright	TFP332	33			69
TY7153	Ultra K17	16.8k (K240)	CMSA Upright	TFP330	33			69
TY7223	ESFR-17	16.8k (K240)	ESFR Pendent	TFP317	38			74
TY7226	ESFR-17	16.8k (K240)	ESFR Pendent	TFP315	39			75
TY7251	K17-231	16.8k (K240)	Std. Coverage Pendent	TFP332	34			70
TY8223	ESFR-22	22.4K (K320)	ESFR Pendent	TFP321	40			76
TY9128	EC-25	25.2k (K360)	Ext. Coverage Upright	TFP213	42			78
TY9226	ESFR-25	25.2k (K360)	ESFR Pendent	TFP312	41			77

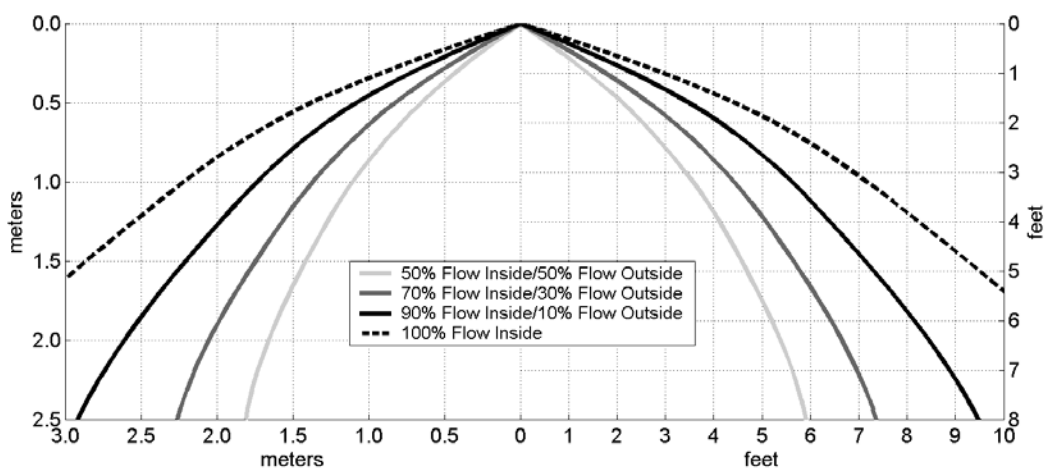
7 PSI
7.4 GPM
(0.5 Bar)
(28 LPM)



15 PSI
11 GPM
(1.0 Bar)
(41 LPM)



30 PSI
15 GPM
(2.1 Bar)
(58 LPM)



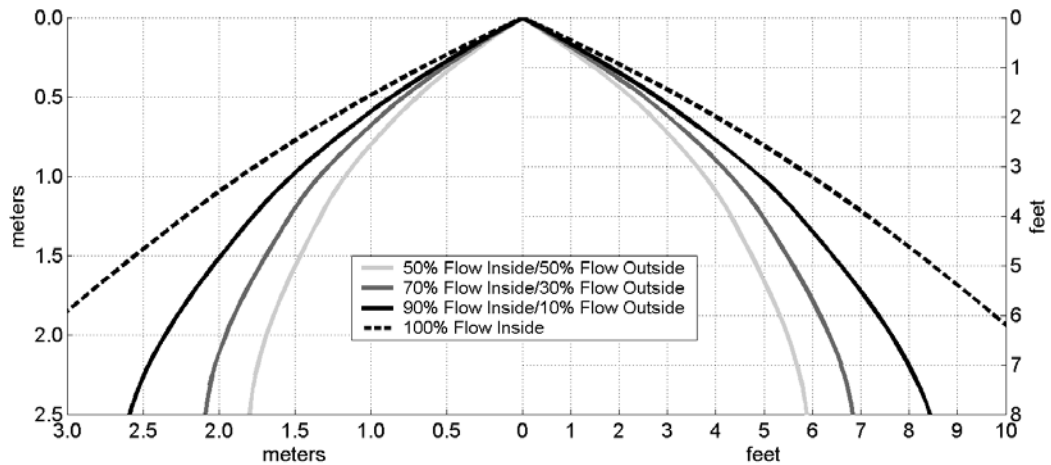
Spray Profile Patterns

TY1121, TY-FRL

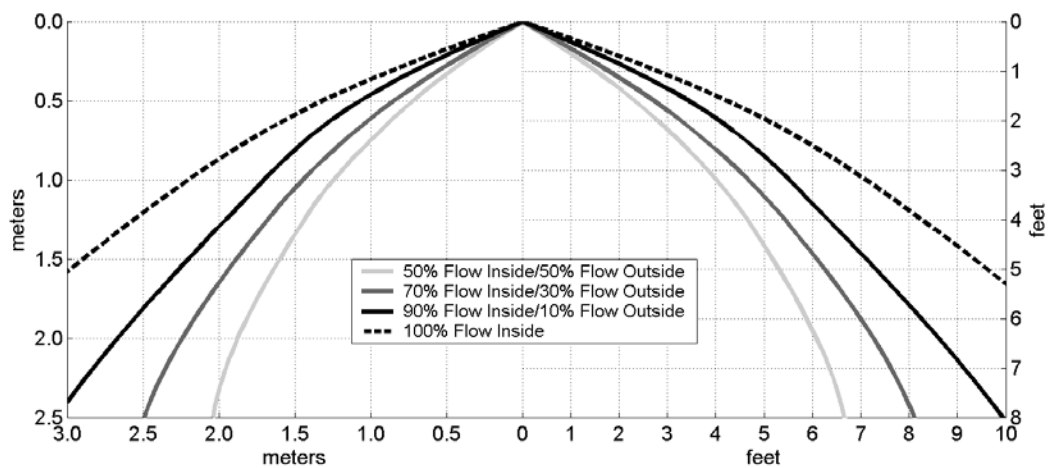
Standard Coverage Upright

K= 2.8 (K 40), 7 inches (178 mm) Deflector to Ceiling

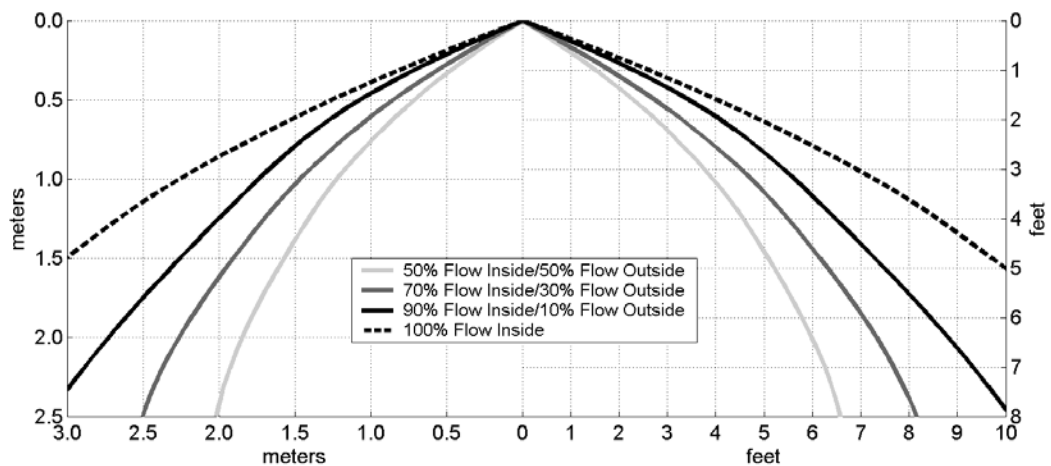
7 PSI
7.4 GPM
(0.5 Bar)
(28 LPM)



15 PSI
11 GPM
(1.0 Bar)
(41 LPM)



30 PSI
15 GPM
(2.1 Bar)
(58 LPM)



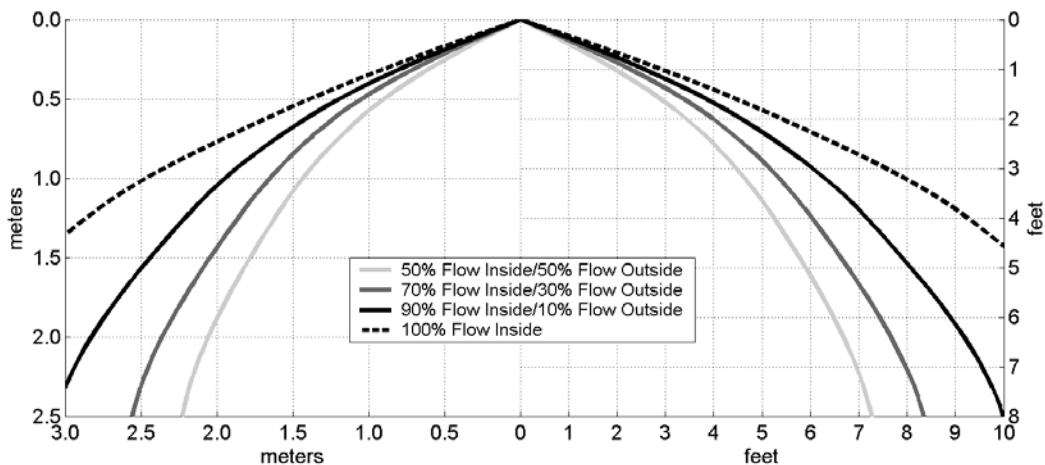
Spray Profile Patterns

Standard Coverage Upright

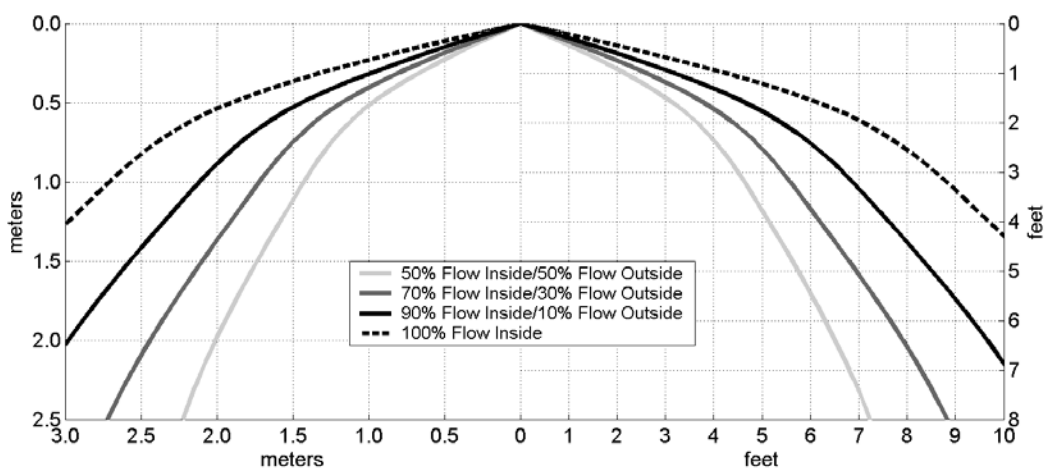
K= 2.8 (K 40), 7 inches (178 mm) Deflector to Ceiling

TY1131, TY-FRB
TY1151, TY-B

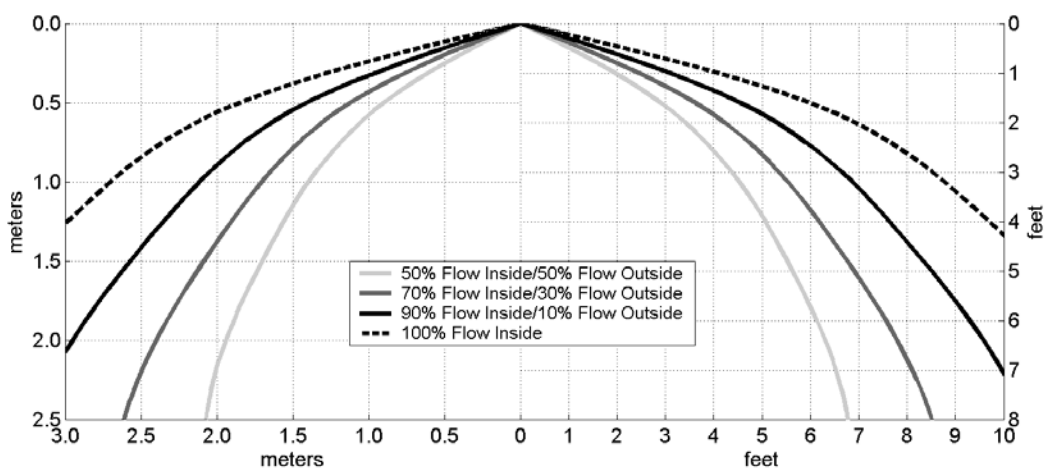
7 PSI
7.4 GPM
(0.5 Bar)
(28 LPM)



15 PSI
11 GPM
(1.0 Bar)
(41 LPM)



30 PSI
15 GPM
(2.1 Bar)
(58 LPM)



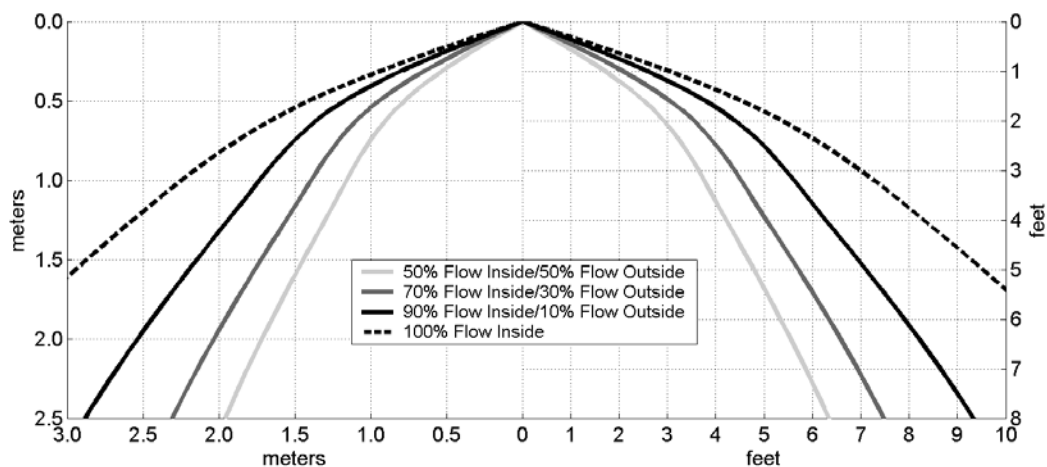
Spray Profile Patterns

TY1221, TY-FRL

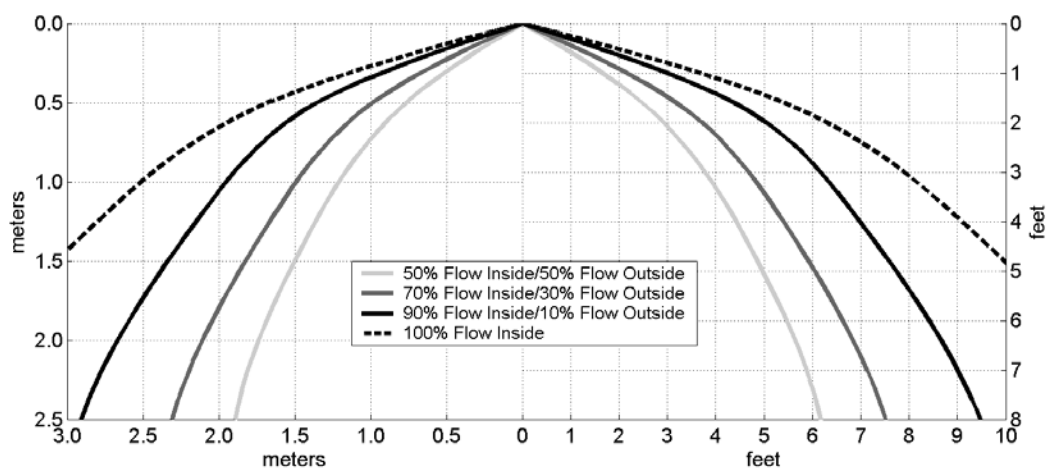
Standard CoveragePendent

K= 2.8 (K 40), 7 inches (178 mm) Deflector to Ceiling

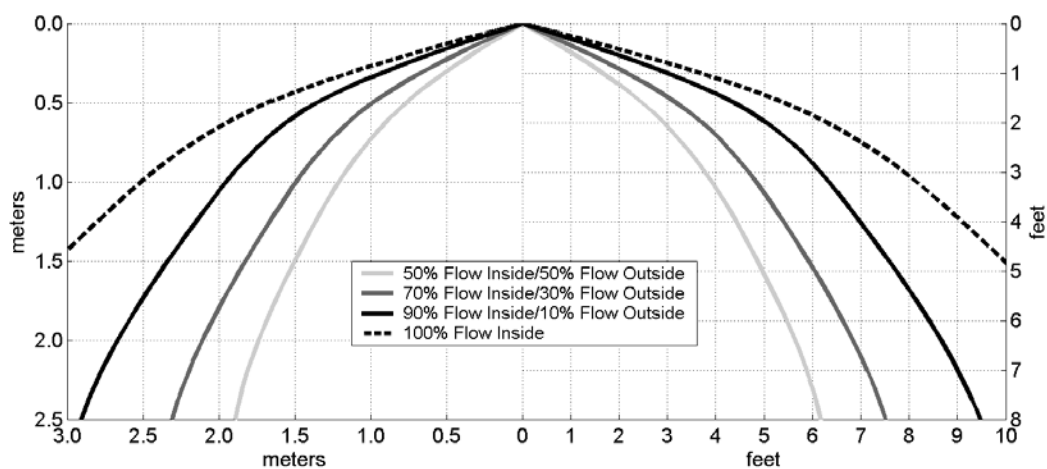
7 PSI
7.4 GPM
(0.5 Bar)
(28 LPM)



15 PSI
11 GPM
(1.0 Bar)
(41 LPM)



30 PSI
15 GPM
(2.1 Bar)
(58 LPM)

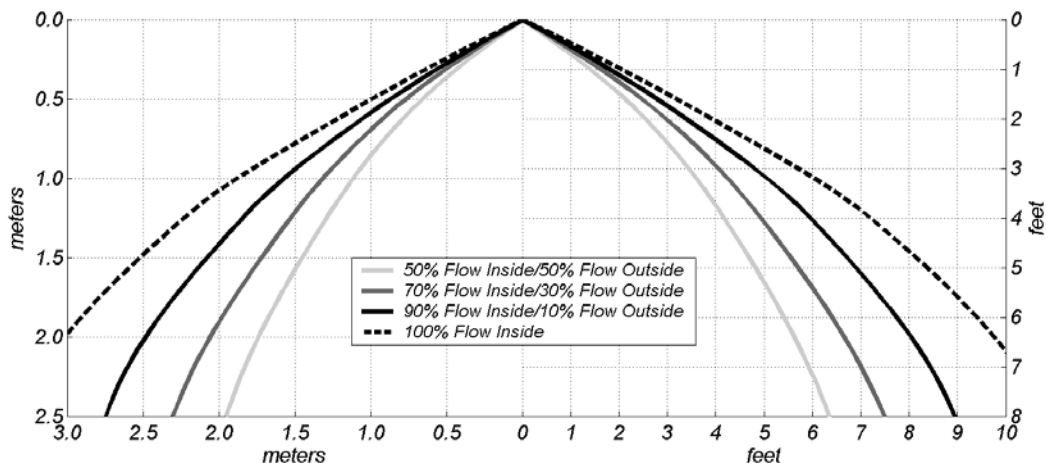


Spray Profile Patterns

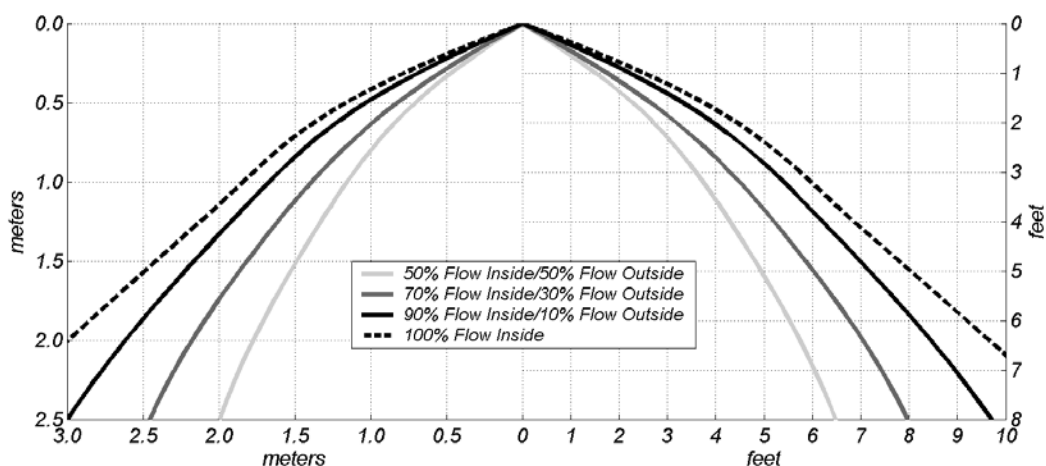
TY1231, TY-FRB
TY1251, TY-B

Standard CoveragePendent
K= 2.8 (K 40), 7 inches (178 mm) Deflector to Ceiling

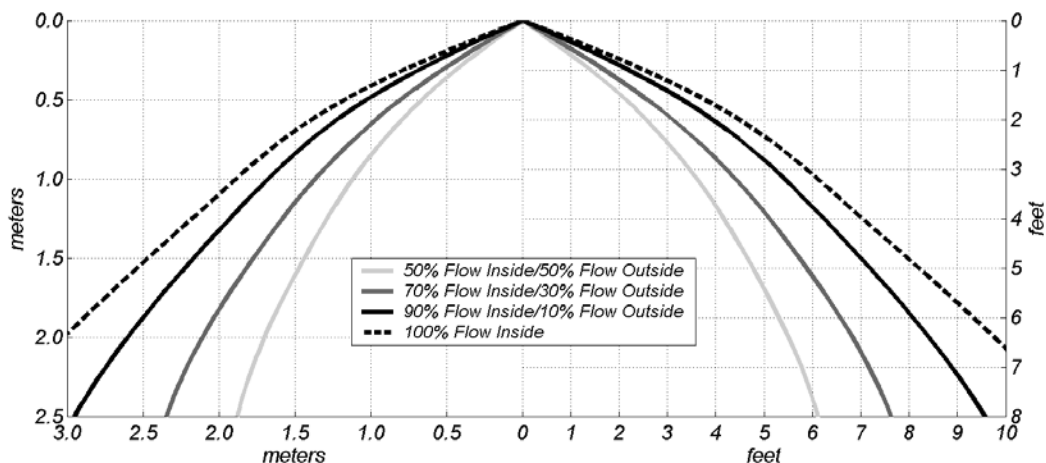
7 PSI
11 GPM
(0.5 Bar)
(40 LPM)



15 PSI
15 GPM
(1.0 Bar)
(58 LPM)



30 PSI
22 GPM
(2.1 Bar)
(82 LPM)



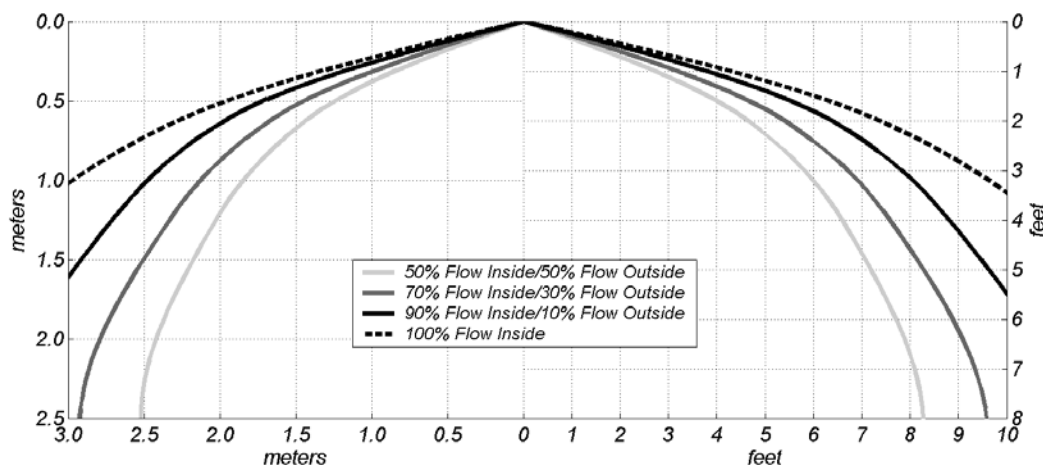
Spray Profile Patterns

Standard Coverage Upright

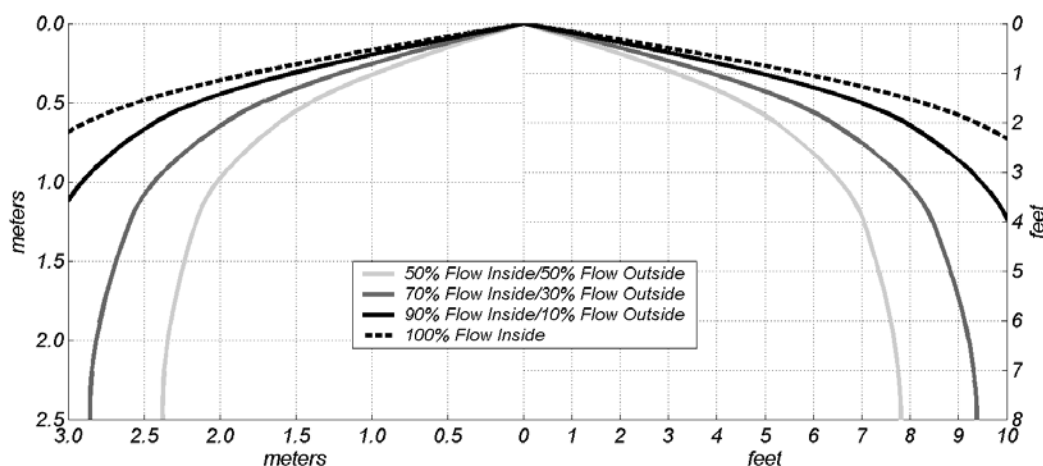
$K = 3.9$ ($K 57$), 7 inches (178 mm) Deflector to Ceiling

TY2108, TY-B
TY2109, TY-FRB
TY2149, TY-B (4mm)

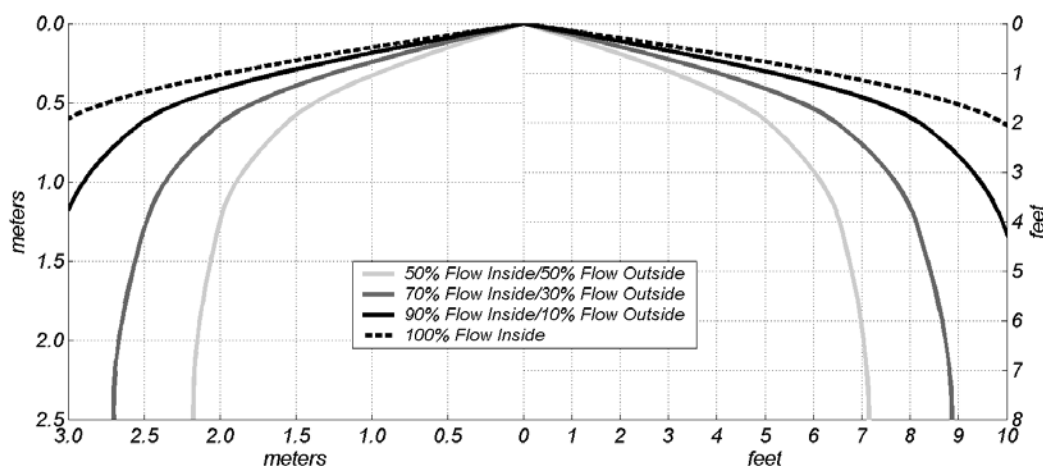
7 PSI
11 GPM
(0.5 Bar)
(40 LPM)



15 PSI
15 GPM
(1.0 Bar)
(58 LPM)



30 PSI
22 GPM
(2.1 Bar)
(82 LPM)



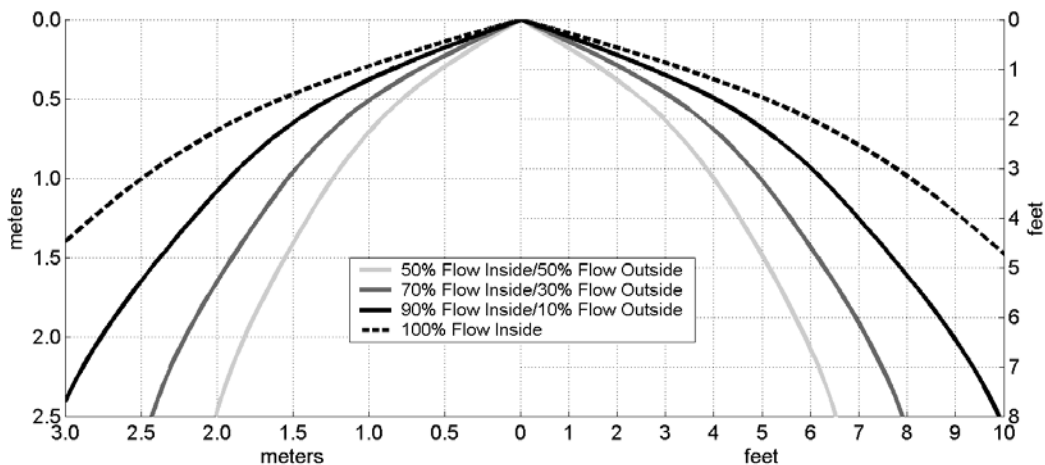
Spray Profile Patterns

Standard Coverage Pendent

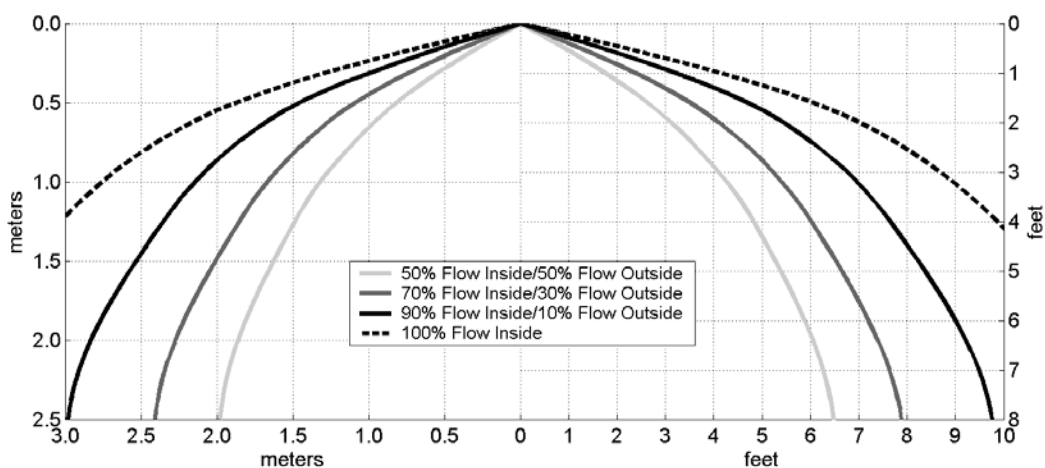
$K = 3.9$ ($K 57$), 7 inches (178 mm) Deflector to Ceiling

TY2208, TY-B
TY2209, TY-FRB
TY2249, TY-B (4mm)

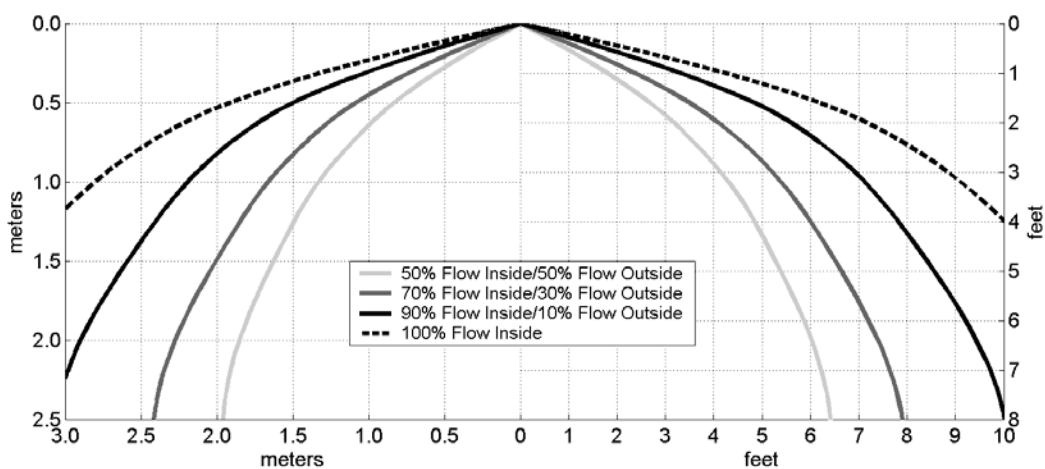
7 PSI
11 GPM
(0.5 Bar)
(42 LPM)



15 PSI
16 GPM
(1.0 Bar)
(62 LPM)



30 PSI
23 GPM
(2.1 Bar)
(87 LPM)



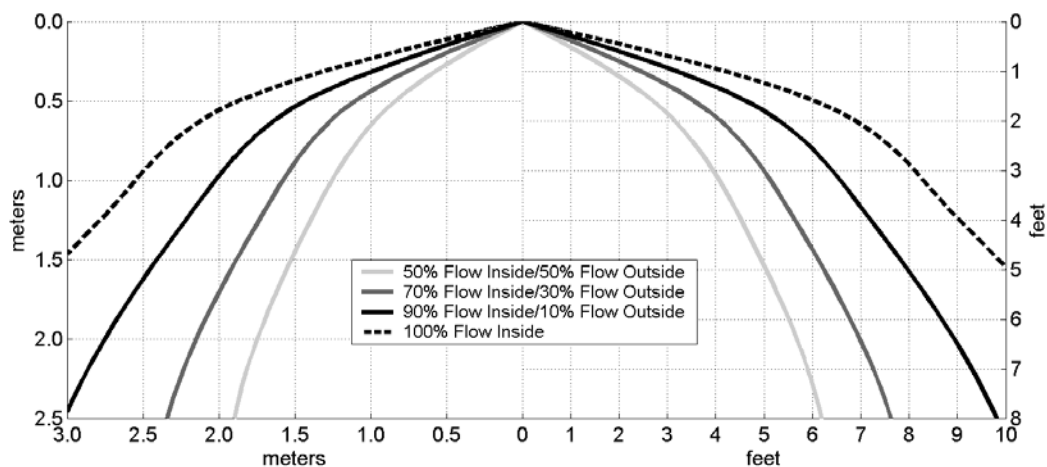
Spray Profile Patterns

TY2131, TY-FRB

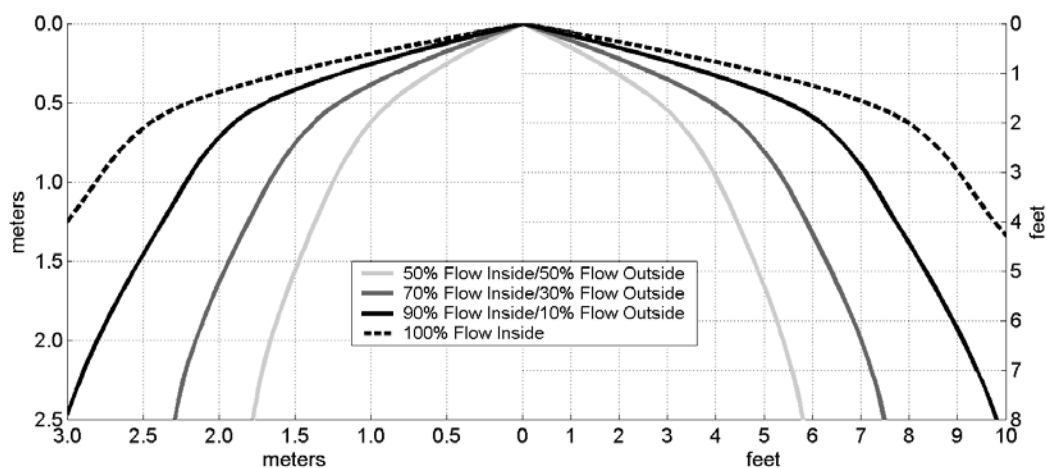
Standard Coverage Upright

K= 4.2 (K 60), 7 inches (178 mm) Deflector to Ceiling

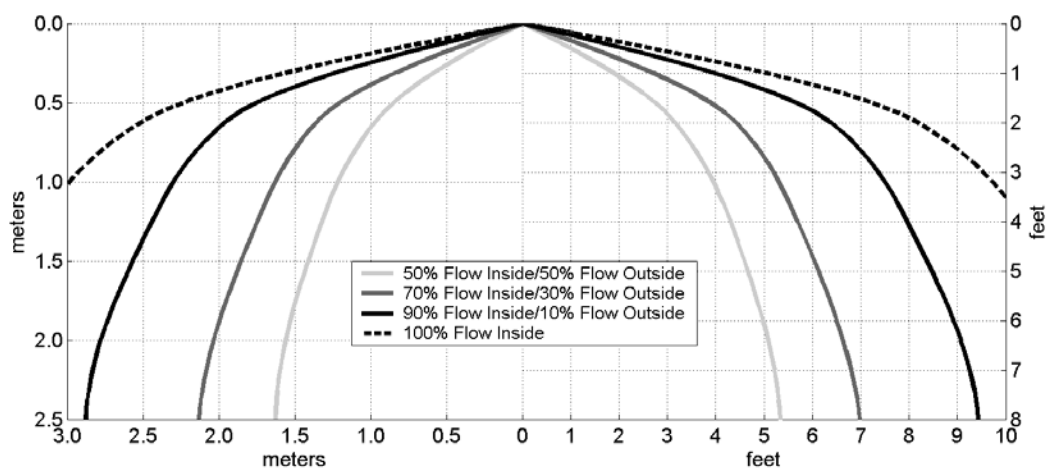
7 PSI
11 GPM
(0.5 Bar)
(42 LPM)



15 PSI
16 GPM
(1.0 Bar)
(62 LPM)



30 PSI
23 GPM
(2.1 Bar)
(87 LPM)

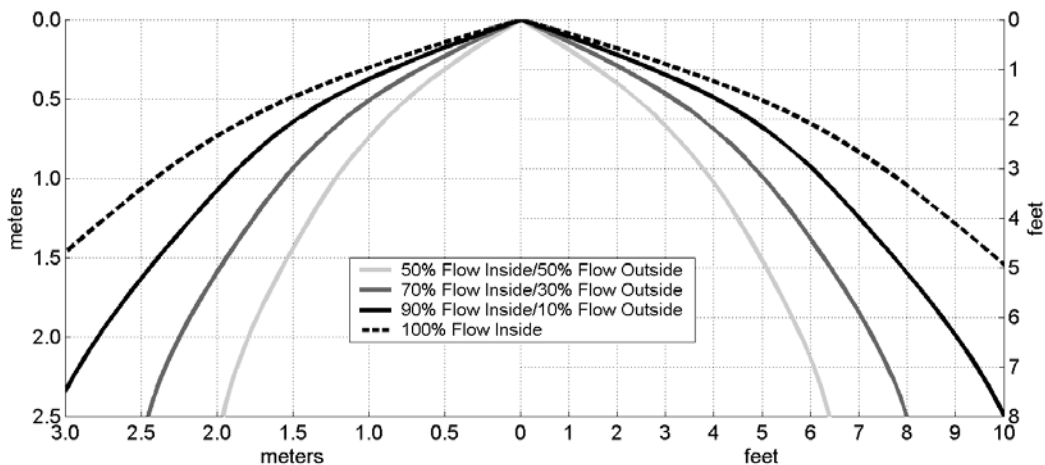


Spray Profile Patterns

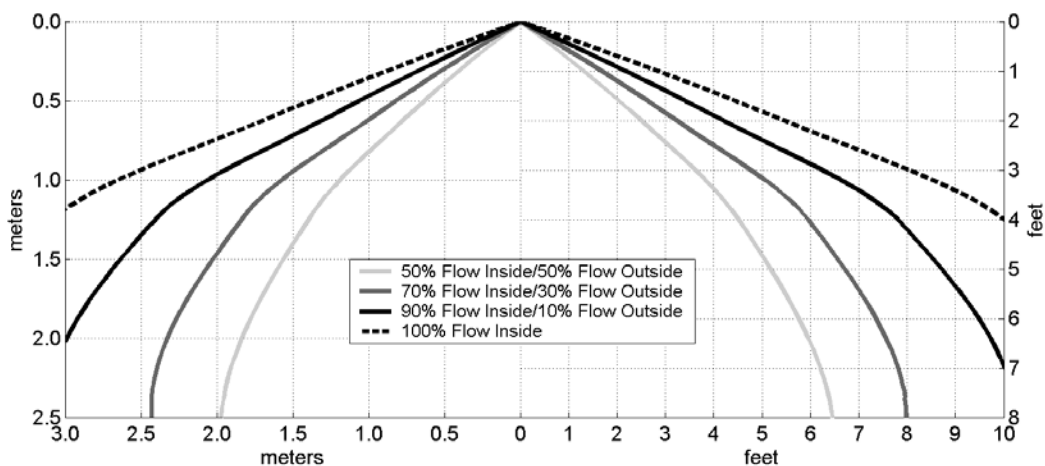
TY2231, TY-FRB

Standard CoveragePendent
K= 4.2 (K 60), 7 inches (178 mm) Deflector to Ceiling

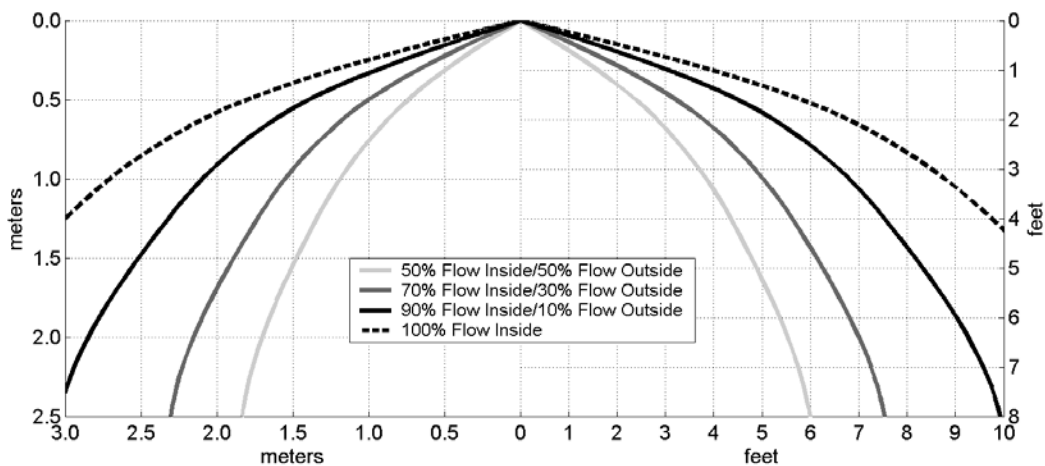
7 PSI
15 GPM
(0.5 Bar)
(56 LPM)



15 PSI
22 GPM
(1.0 Bar)
(82 LPM)



30 PSI
31 GPM
(2.1 Bar)
(120 LPM)



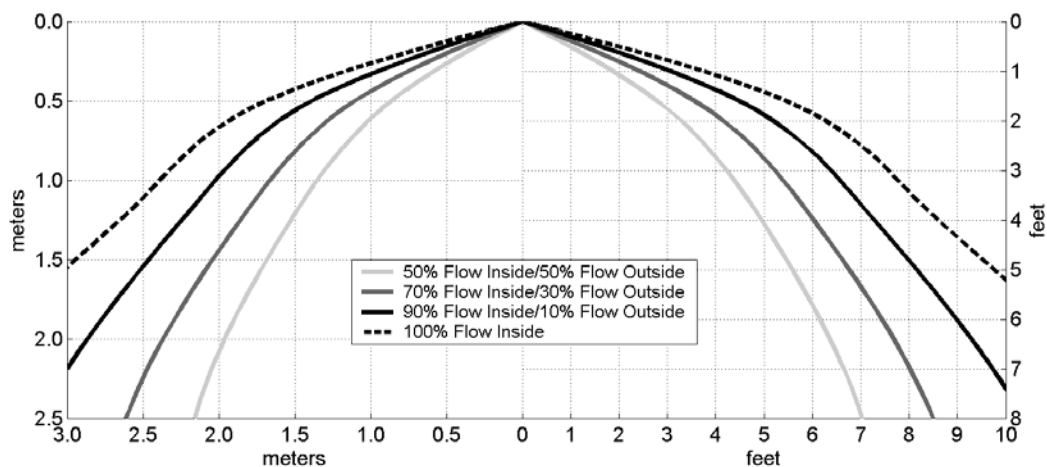
Spray Profile Patterns

TY3111, TY-L

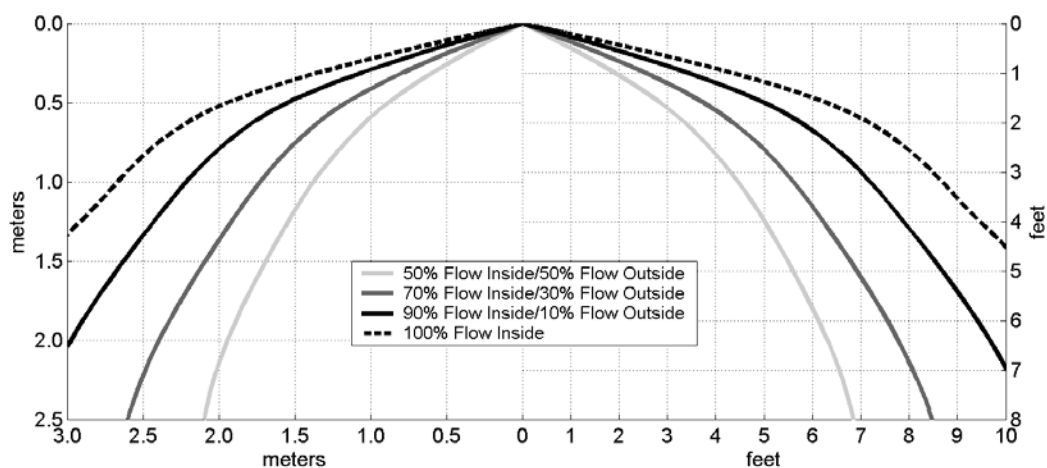
Standard Coverage Upright

K= 5.6 (K 80), 7 inches (178 mm) Deflector to Ceiling

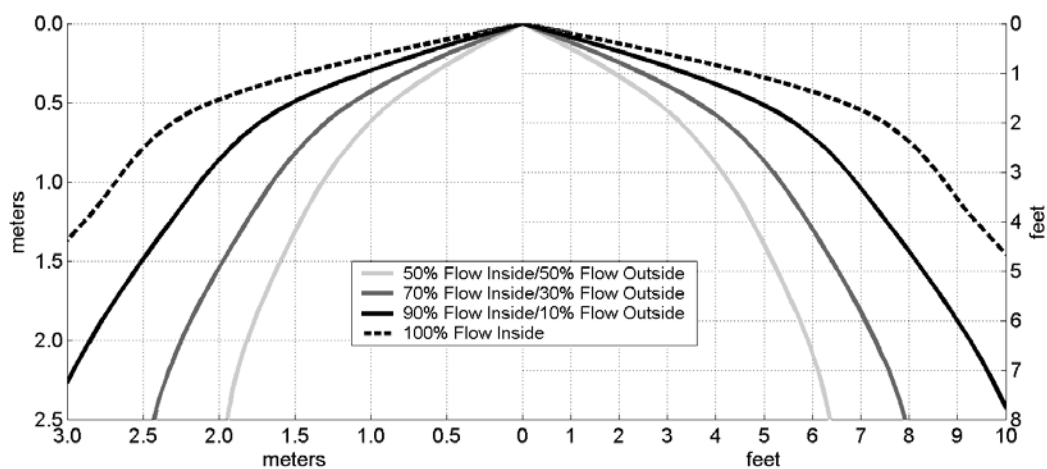
7 PSI
15 GPM
(0.5 Bar)
(56 LPM)



15 PSI
22 GPM
(1.0 Bar)
(82 LPM)



30 PSI
31 GPM
(2.1 Bar)
(120 LPM)

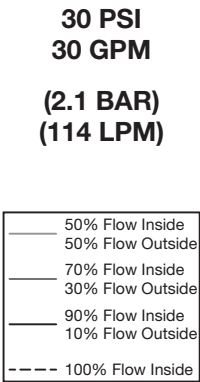
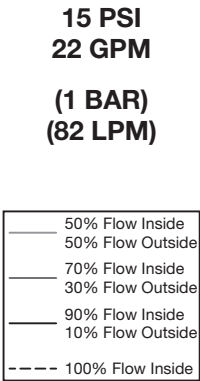
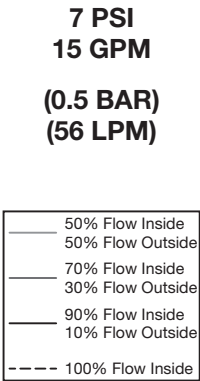


Spray Profile Patterns

TY3121, TY-FRL

Standard Coverage Upright

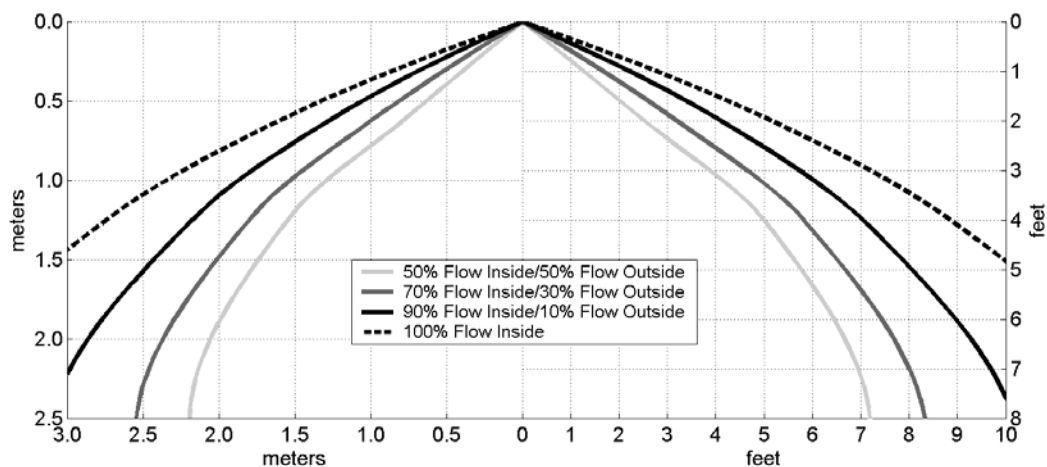
K= 5.6 (K 80), 7 inches (178 mm) Deflector to Ceiling



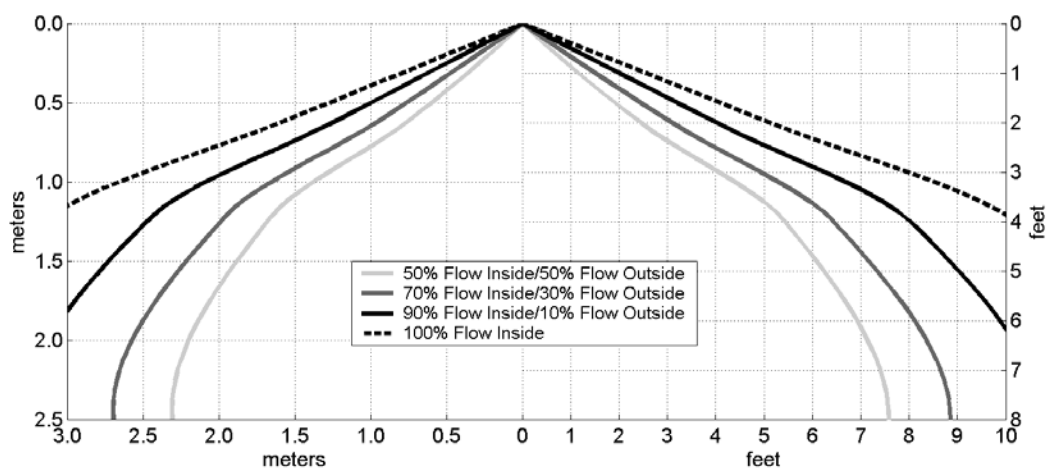
Spray Profile Patterns
TY313, TY-FRB
TY315, TY-B

Standard Coverage Upright
K=5.6 (K80), 7 Inches (178 mm) Deflector to Ceiling

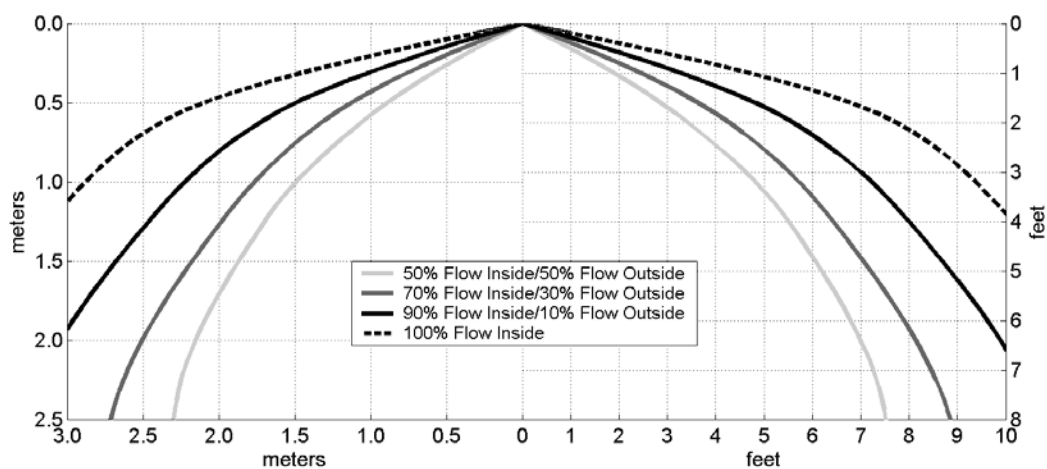
7 PSI
15 GPM
(0.5 Bar)
(56 LPM)



15 PSI
22 GPM
(1.0 Bar)
(82 LPM)



30 PSI
31 GPM
(2.1 Bar)
(120 LPM)



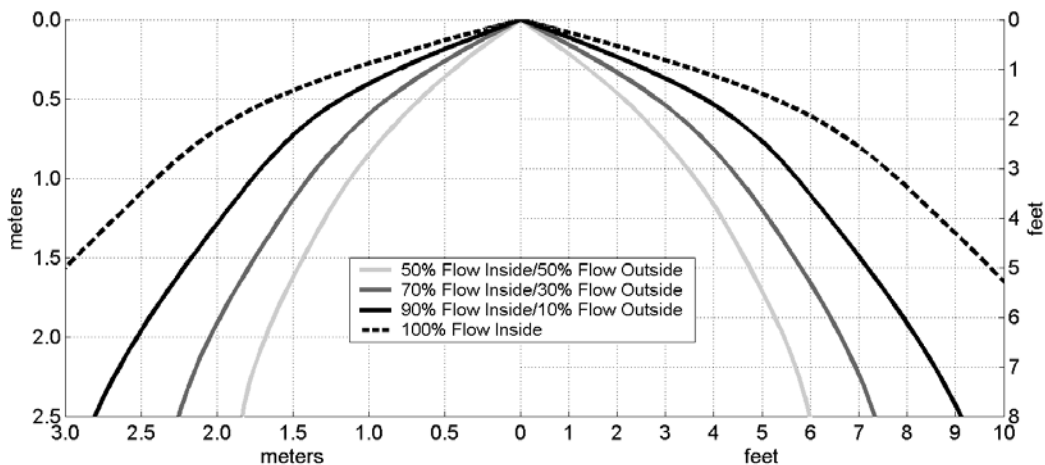
Spray Profile Patterns

Standard Coverage Upright

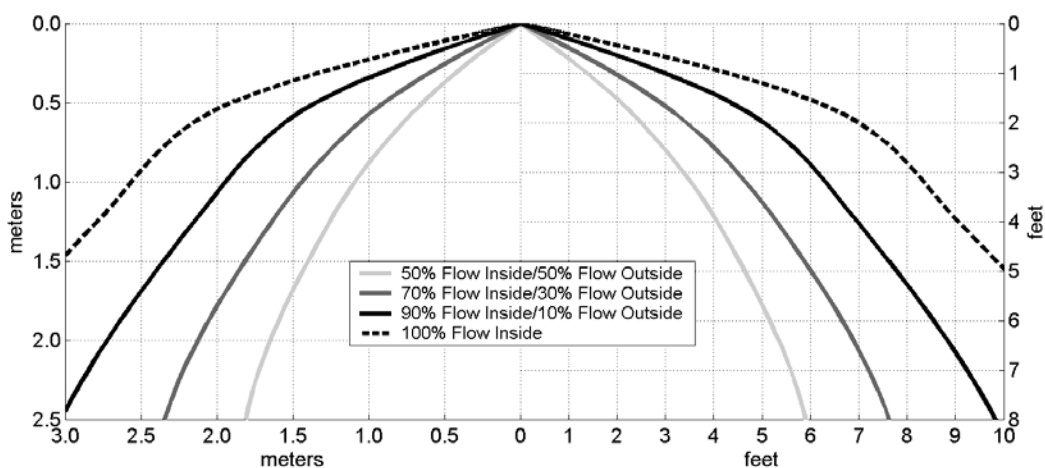
K= 5.6 (K 80), 7 inches (178 mm) Deflector to Ceiling

TY3131, TY-FRB
TY3141, TY-B (4mm)
TY3151, TY-B

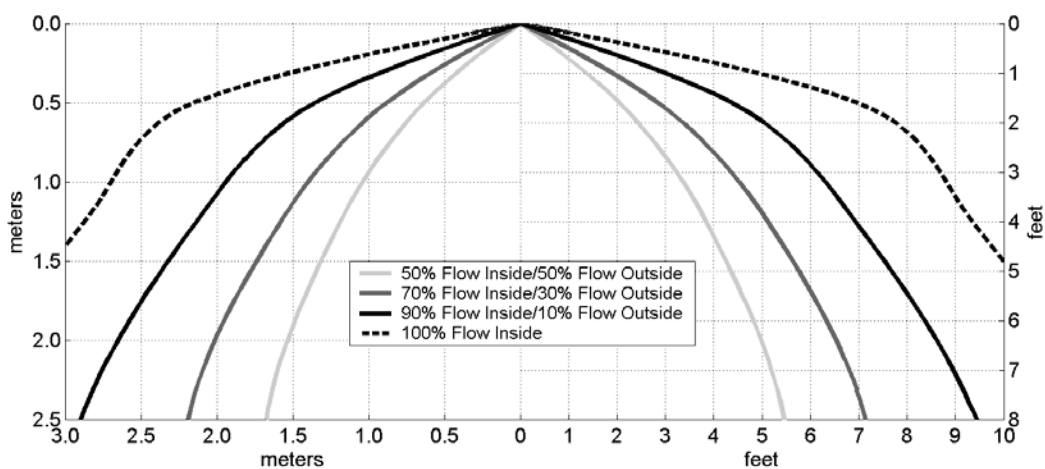
7 PSI
15 GPM
(0.5 Bar)
(56 LPM)



15 PSI
22 GPM
(1.0 Bar)
(82 LPM)



30 PSI
31 GPM
(2.1 Bar)
(120 LPM)



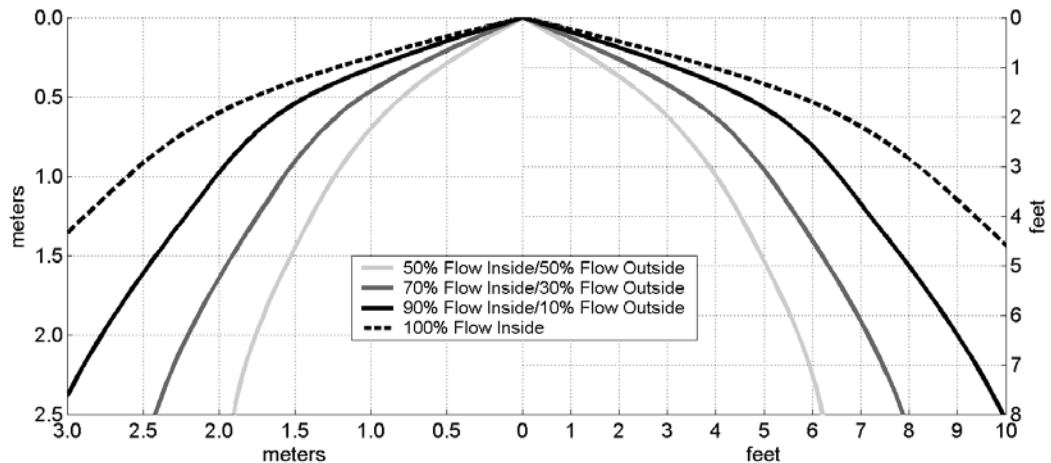
Spray Profile Patterns

Standard CoveragePendent

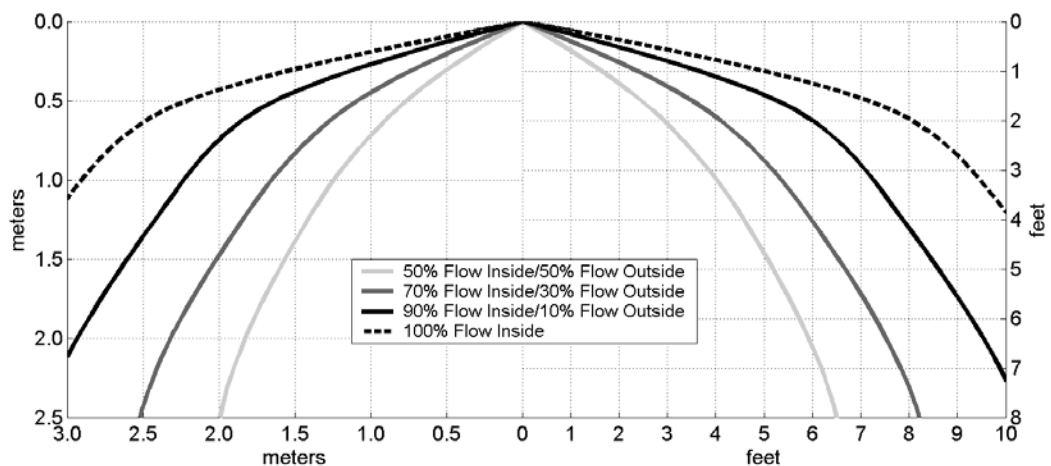
K= 5.6 (K 80) , 7 inches (178 mm) Deflector to Ceiling

TY3211, TY-L

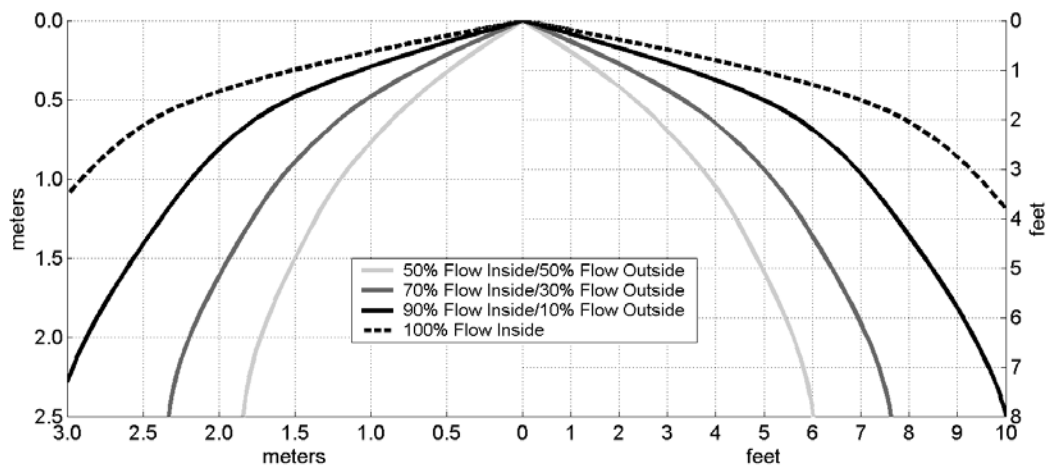
7 PSI
15 GPM
(0.5 Bar)
(56 LPM)



15 PSI
22 GPM
(1.0 Bar)
(82 LPM)



30 PSI
31 GPM
(2.1 Bar)
(120 LPM)

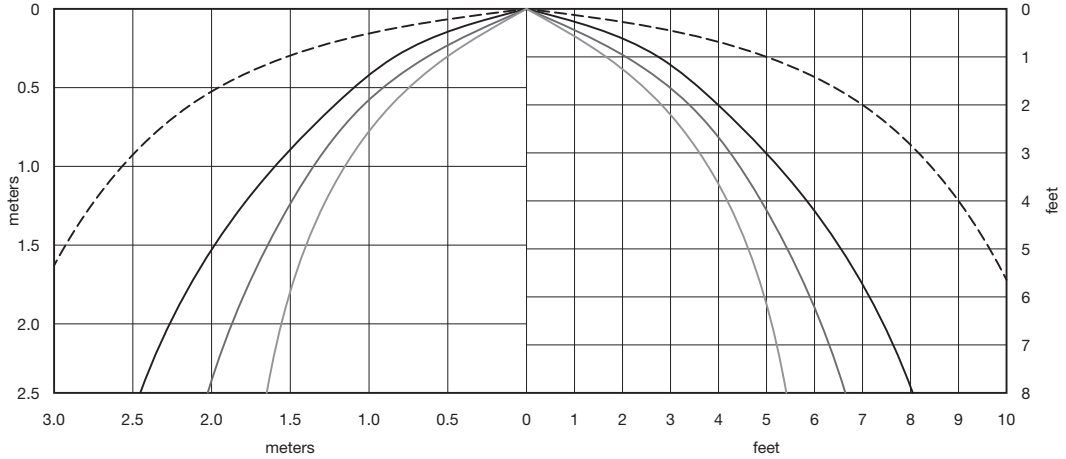
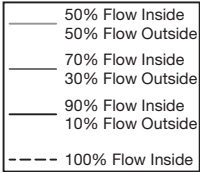


Spray Profile Patterns

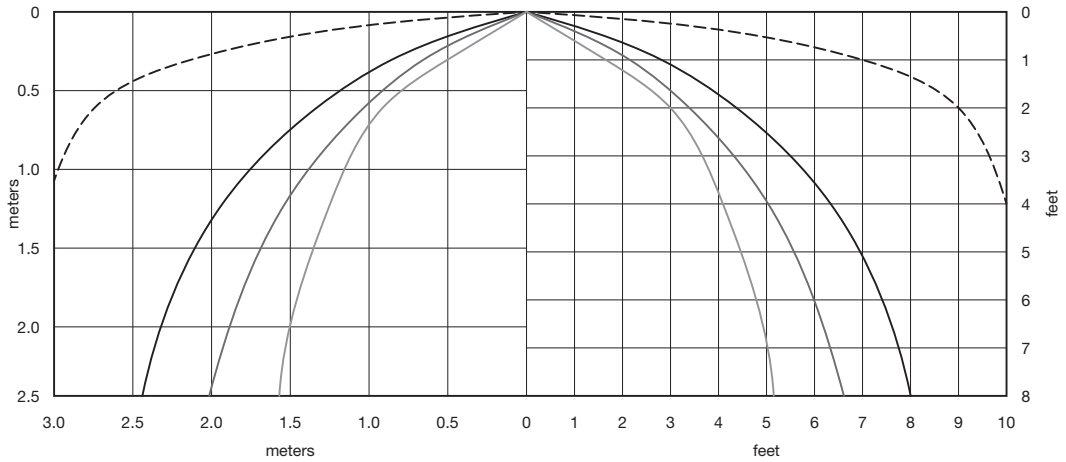
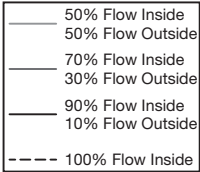
TY3221, TY-FRL

Standard CoveragePendent
K= 5.6 (K 80), 7 inches (178 mm) Deflector to Ceiling

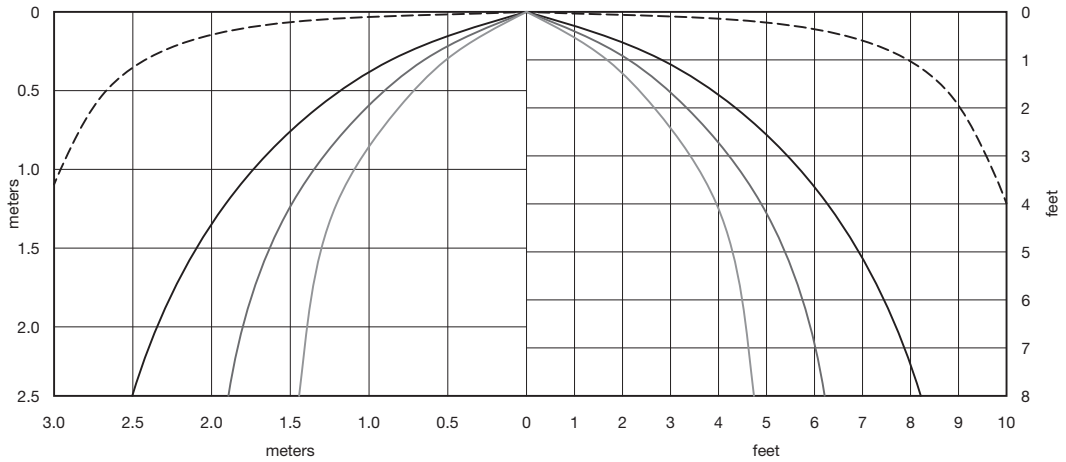
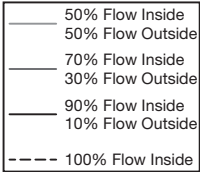
**7 PSI
15 GPM
(0.5 BAR)
(56 LPM)**



**15 PSI
22 GPM
(1 BAR)
(82 LPM)**



**30 PSI
30 GPM
(2.1 BAR)
(114 LPM)**

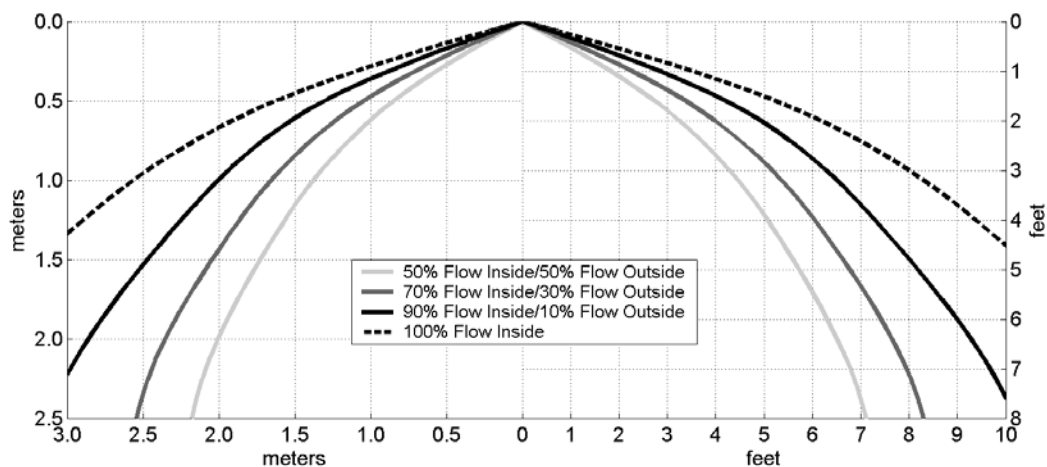


Spray Profile Patterns

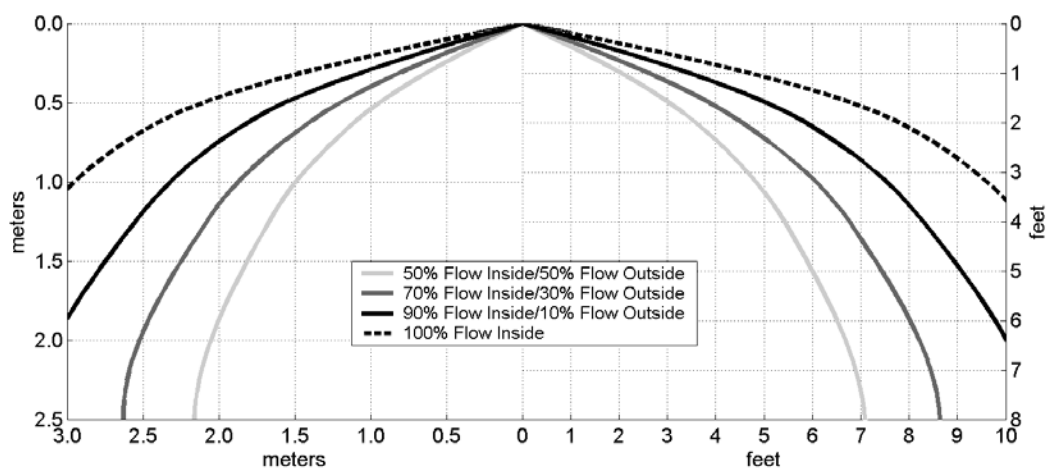
TY323, TY-FRB
TY325, TY-B

Standard Coverage Pendant
K=5.6 (K80), 7 Inches (178 mm) Deflector to Ceiling

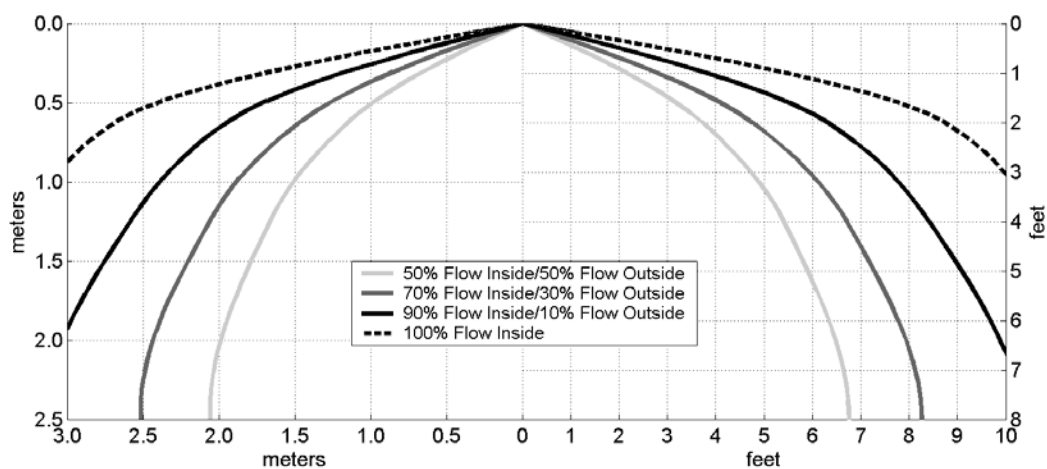
7 PSI
15 GPM
(0.5 Bar)
(56 LPM)



15 PSI
22 GPM
(1.0 Bar)
(82 LPM)



30 PSI
31 GPM
(2.1 Bar)
(120 LPM)

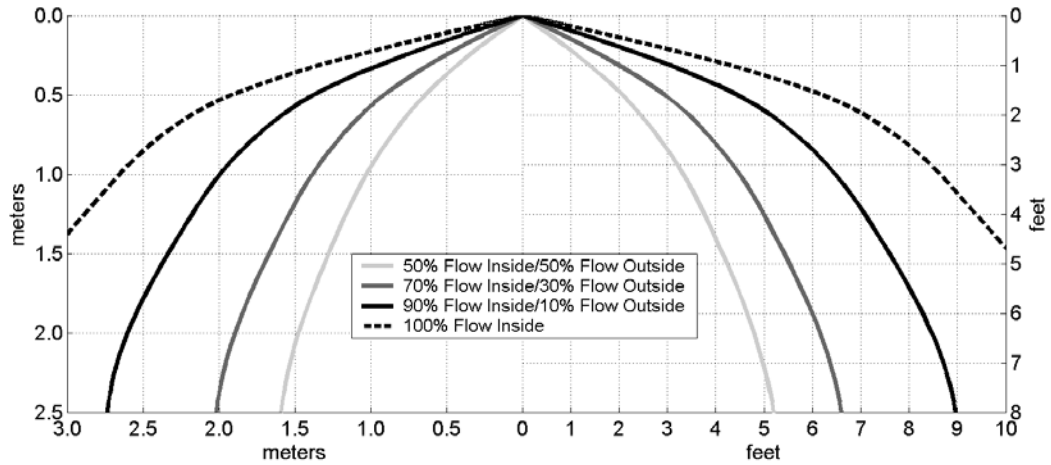


Spray Profile Patterns

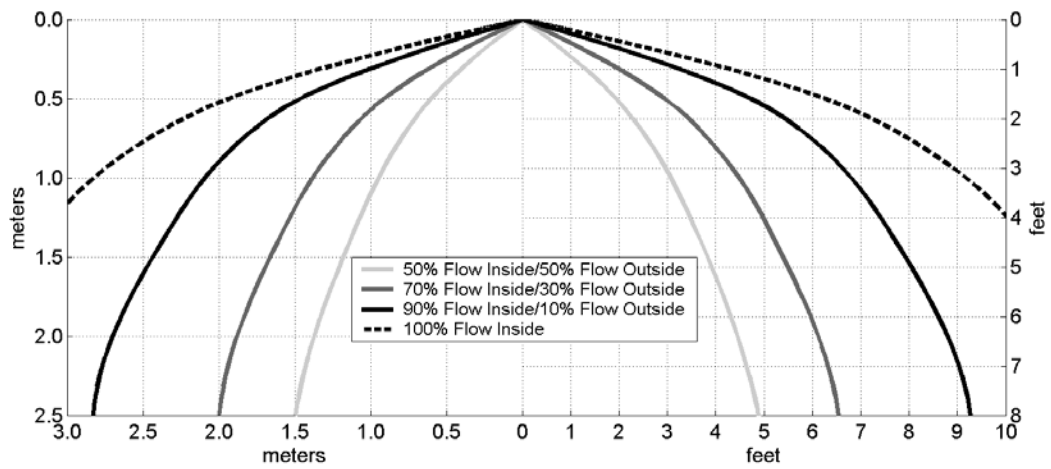
TY3231, TY-FRB
TY3241, TY-B (4mm)
TY3251, TY-B

Standard CoveragePendent
K= 5.6 (K 80), 7 inches (178 mm) Deflector to Ceiling

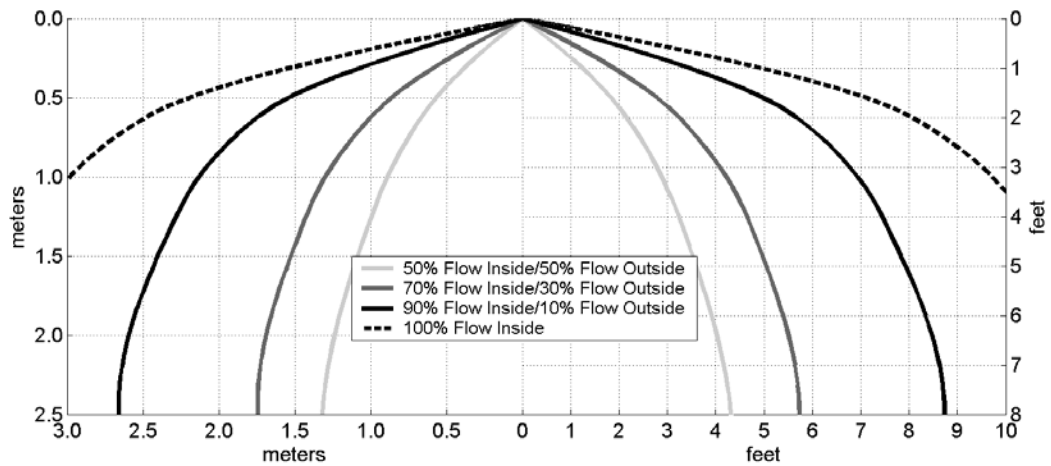
7 PSI
15 GPM
(0.5 Bar)
(56 LPM)



15 PSI
22 GPM
(1.0 Bar)
(82 LPM)



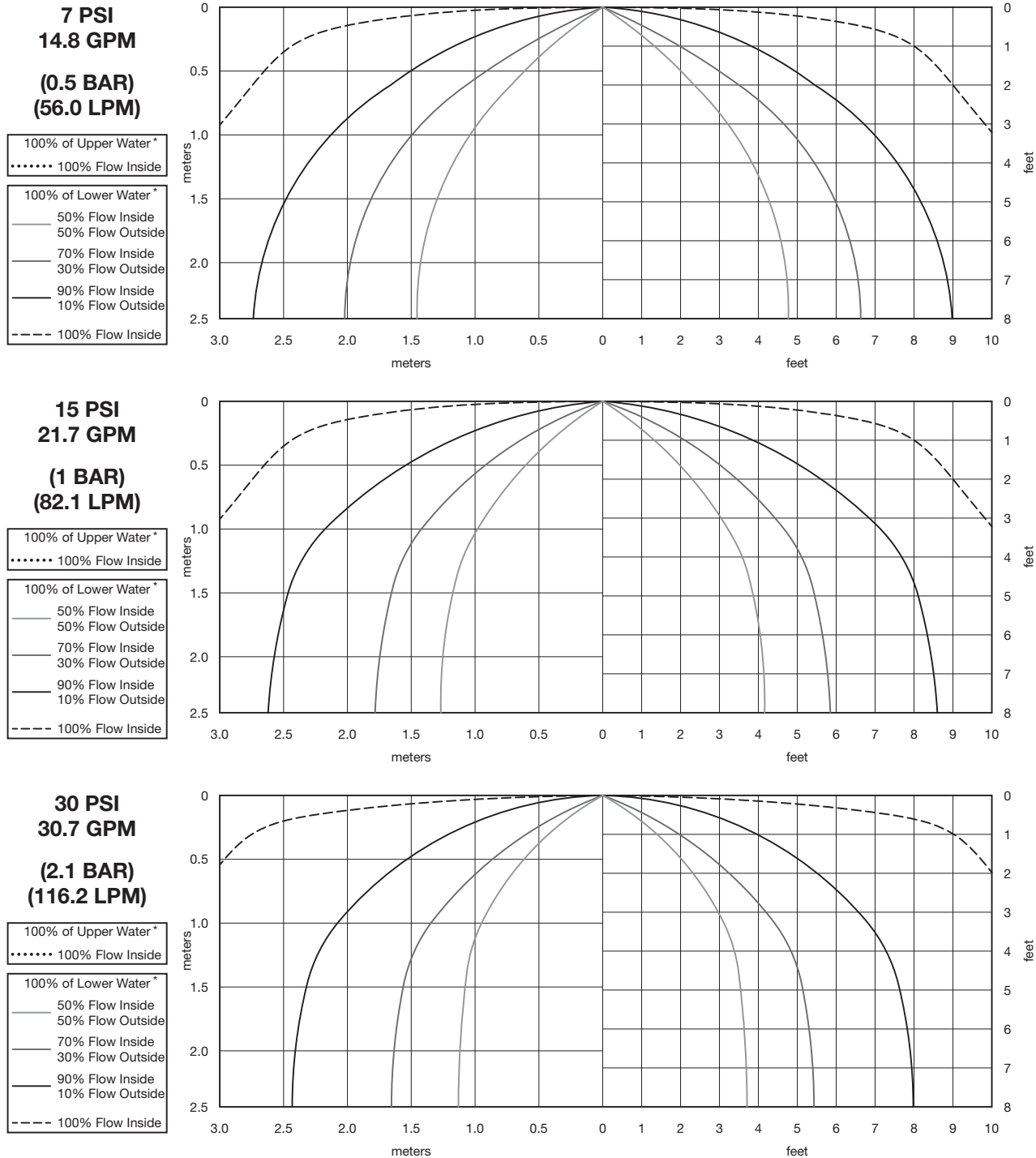
30 PSI
31 GPM
(2.1 Bar)
(120 LPM)



Spray Profile Patterns

Standard Coverage Concealed Pendent
K= 5.6 (K 80) , 7 inches (178 mm) Deflector to Ceiling

TY3531, RFII
TY3532, RFII (EC)
TY3551, RFII

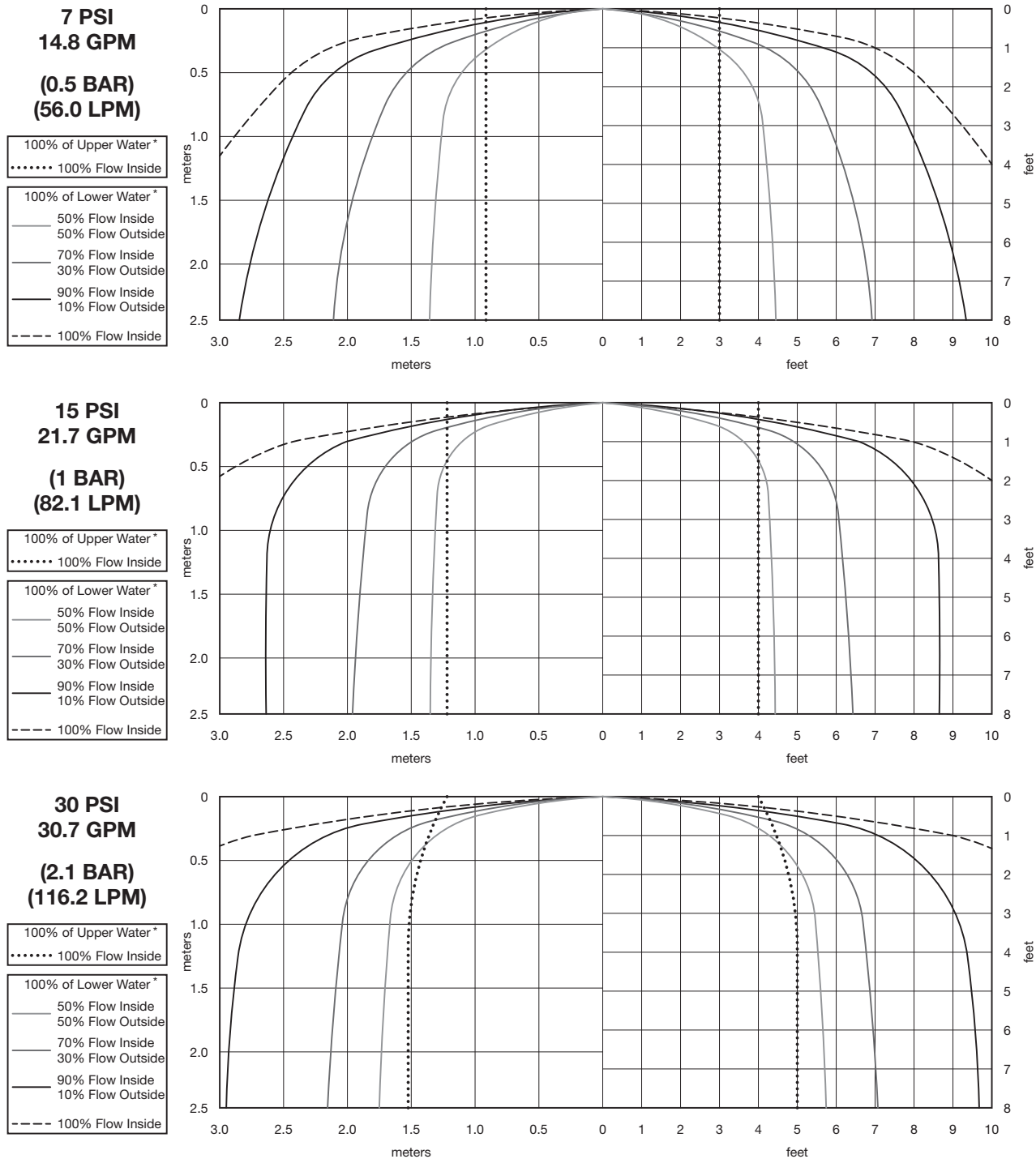


Spray Profile Patterns

TY363, TY-FRB
TY365, TY-B

Conventional in Pendent Orientation
K=5.6 (K80), 7 Inches (178 mm) Deflector to Ceiling

* Conventional Sprinkler Spray Profile Pattern Note:
Depending upon sprinkler model and water supply flow rate and pressure, conventional sprinklers discharge 40% as Upper Water and 60% as Lower Water. Upper Water typically but not consistently strikes the ceiling and then drips downward through the Lower Water. Absence of Upper Water data in the graphs above indicates no spray reached the ceiling.



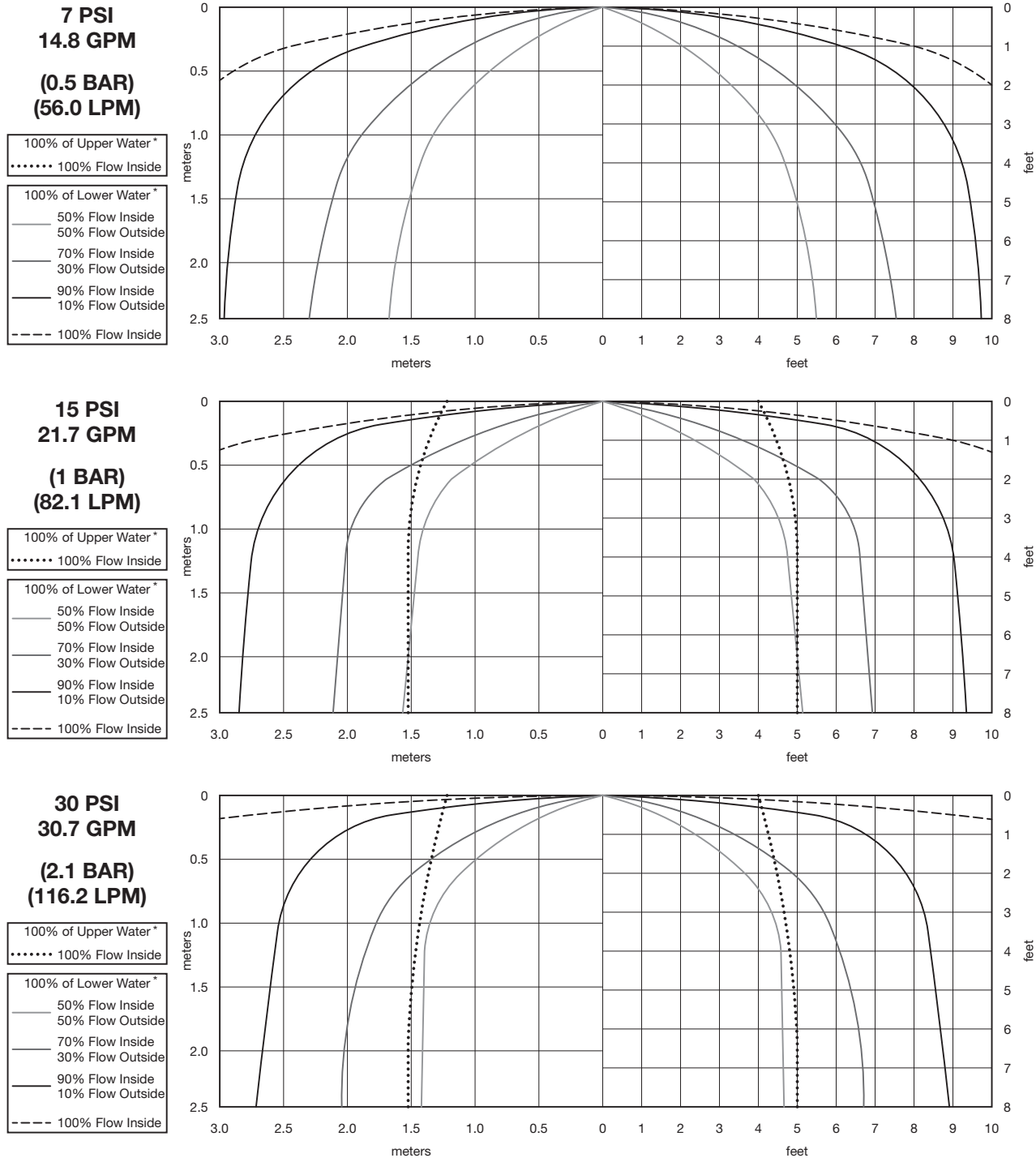
Spray Profile Patterns

TY363, TY-FRB
TY365, TY-B

Conventional in Upright Orientation
K=5.6 (K80), 7 Inches (178 mm) Deflector to Ceiling

* Conventional Sprinkler Spray Profile Pattern Note:

Depending upon sprinkler model and water supply flow rate and pressure, conventional sprinklers discharge 40% as Upper Water and 60% as Lower Water. Upper Water typically but not consistently strikes the ceiling and then drips downward through the Lower Water. Absence of Upper Water data in the graphs above indicates no spray reached the ceiling.



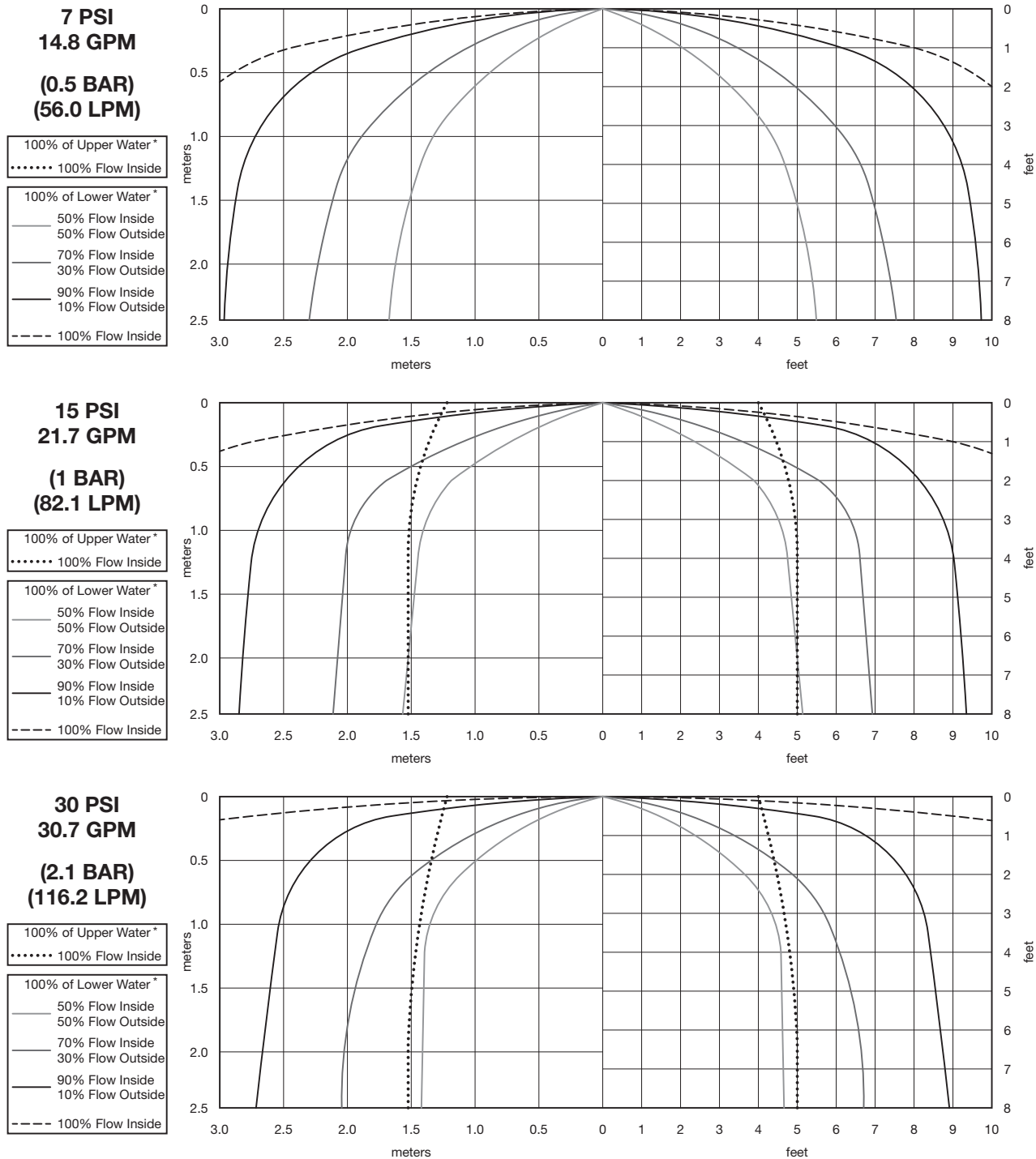
Spray Profile Patterns

TY3631, TY-FRB
TY3641, TY-FRB (4mm)
TY3651, TY-B

Conventional in Pendent Orientation
K=5.6 (K80), 7 Inches (178 mm) Deflector to Ceiling

* Conventional Sprinkler Spray Profile Pattern Note:

Depending upon sprinkler model and water supply flow rate and pressure, conventional sprinklers discharge 40% as Upper Water and 60% as Lower Water. Upper Water typically but not consistently strikes the ceiling and then drips downward through the Lower Water. Absence of Upper Water data in the graphs above indicates no spray reached the ceiling.



Spray Profile Patterns

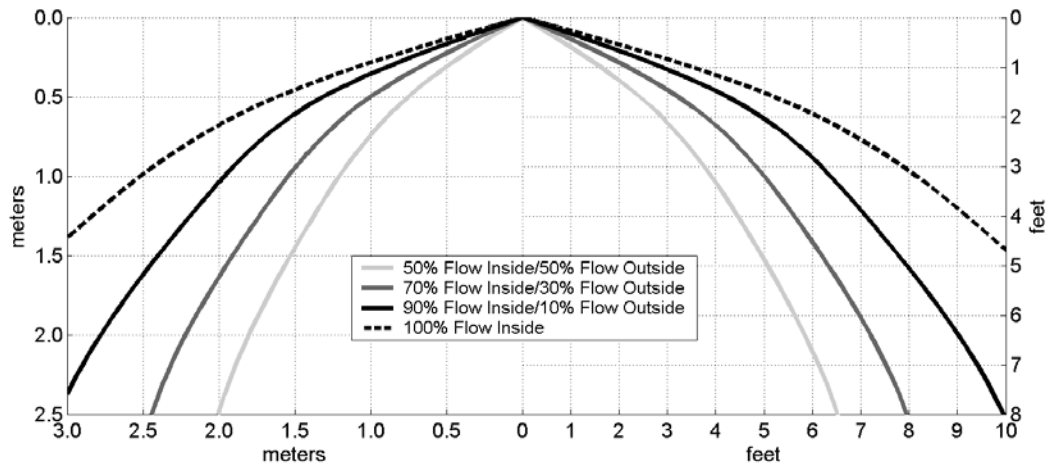
TY3631, TY-FRB
TY3641, TY-FRB (4mm)
TY3651, TY-B

Conventional in Upright Orientation
K=5.6 (K80), 7 Inches (178 mm) Deflector to Ceiling

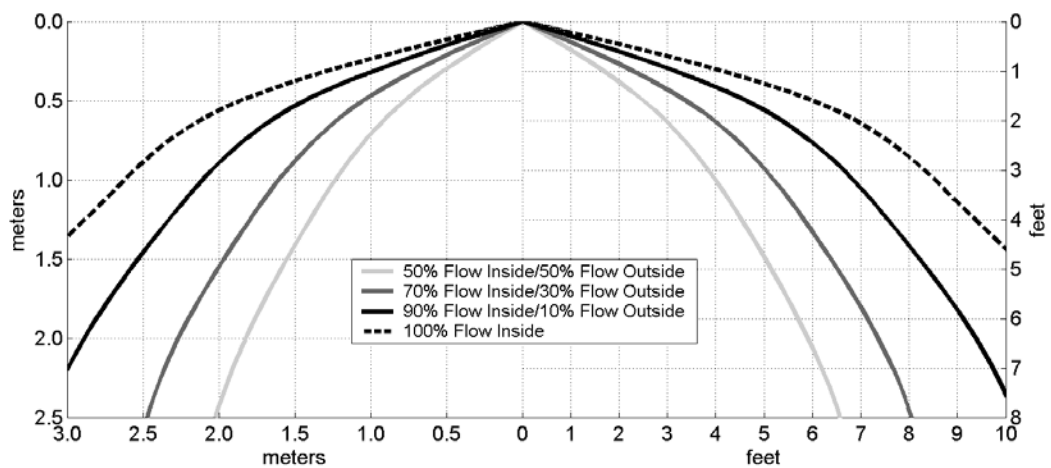
* Conventional Sprinkler Spray Profile Pattern Note:

Depending upon sprinkler model and water supply flow rate and pressure, conventional sprinklers discharge 40% as Upper Water and 60% as Lower Water. Upper Water typically but not consistently strikes the ceiling and then drips downward through the Lower Water. Absence of Upper Water data in the graphs above indicates no spray reached the ceiling.

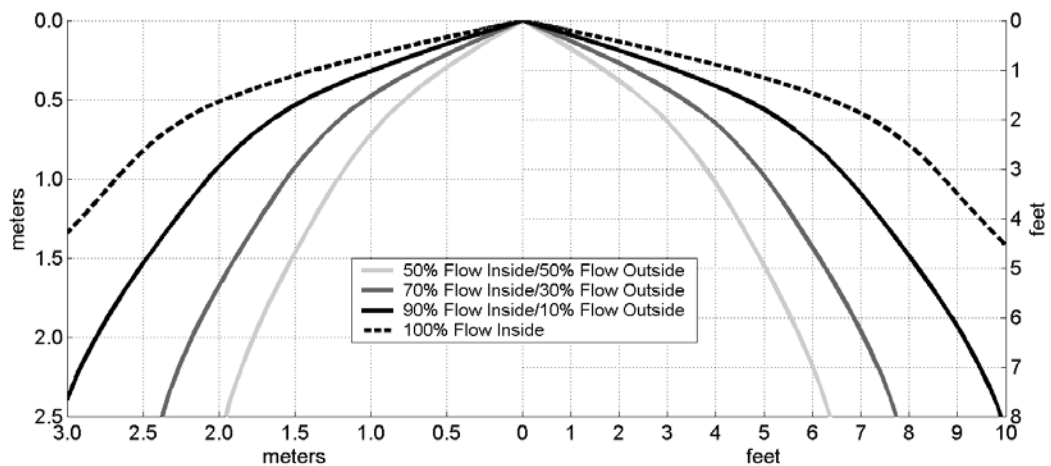
7 PSI
21 GPM
(0.5 Bar)
(80 LPM)



15 PSI
31 GPM
(1.0 Bar)
(120 LPM)



30 PSI
44 GPM
(2.1 Bar)
(170 LPM)

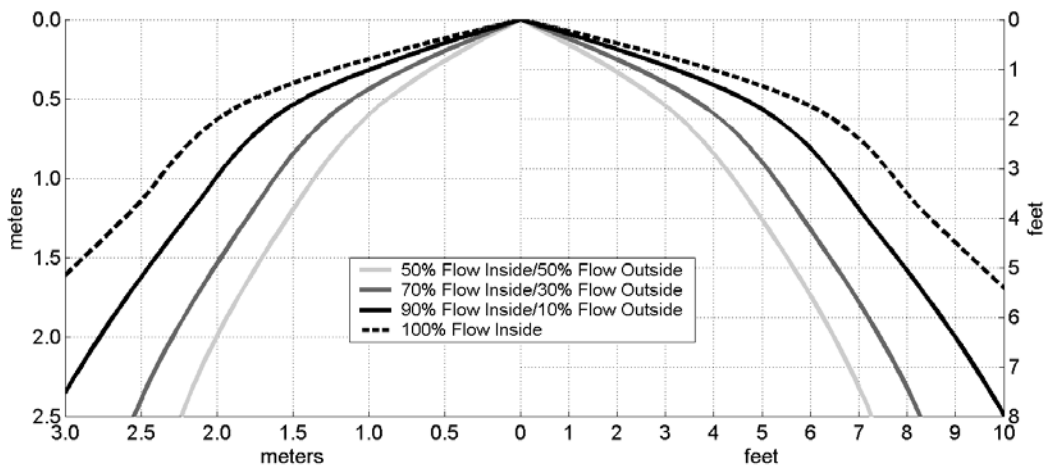


Spray Profile Patterns

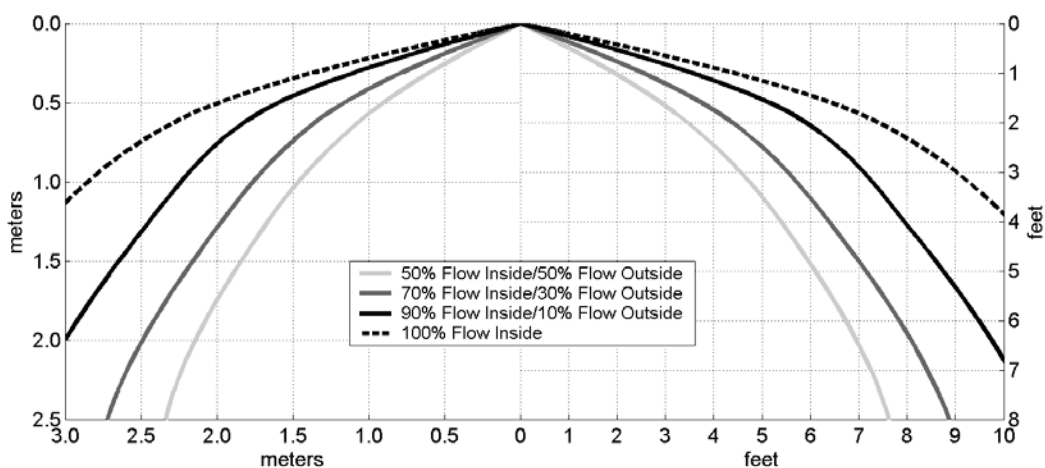
TY4111, TY-L

Standard Coverage Upright
K= 8.0 (K 115), 7 inches (178 mm) Deflector to Ceiling

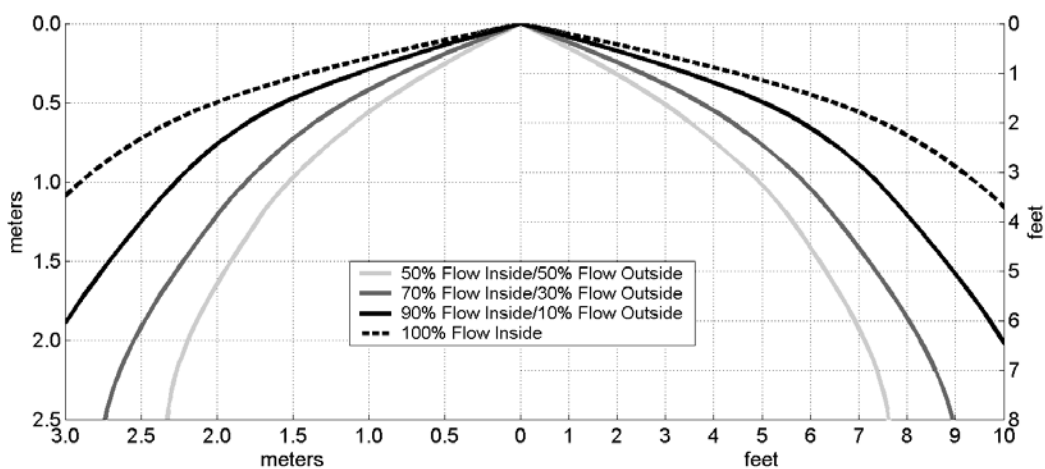
7 PSI
21 GPM
(0.5 Bar)
(80 LPM)



15 PSI
31 GPM
(1.0 Bar)
(120 LPM)



30 PSI
44 GPM
(2.1 Bar)
(170 LPM)



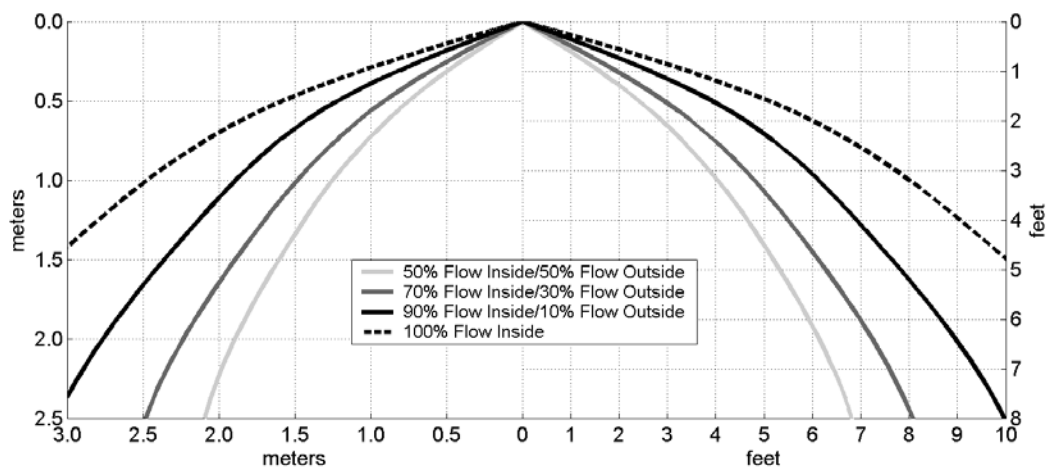
Spray Profile Patterns

TY4121, TY-FRL

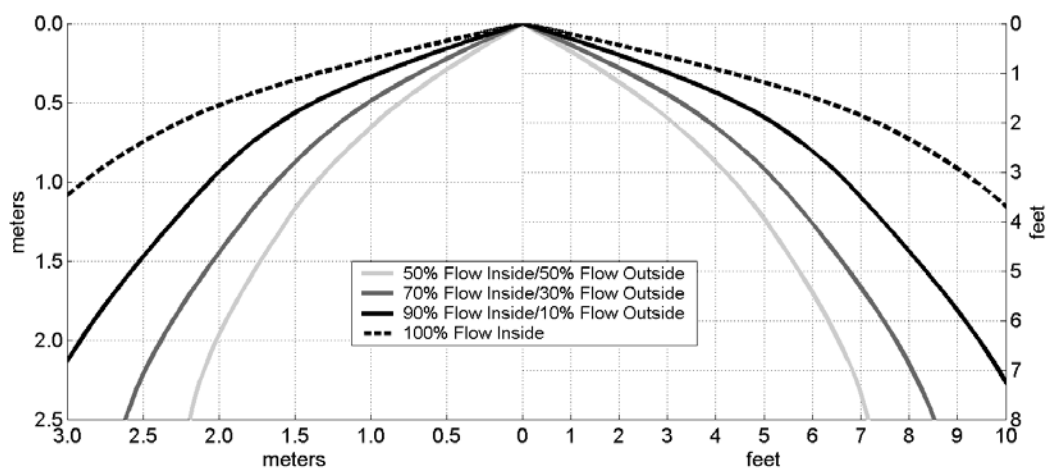
Standard Coverage Upright

K= 8.0 (K 115), 7 inches (178 mm) Deflector to Ceiling

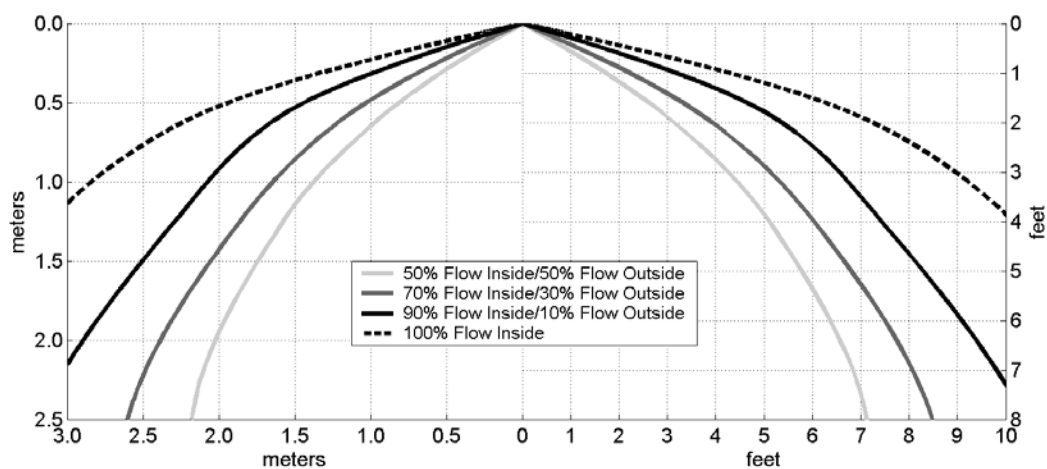
7 PSI
21 GPM
(0.5 Bar)
(80 LPM)



15 PSI
31 GPM
(1.0 Bar)
(120 LPM)



30 PSI
44 GPM
(2.1 Bar)
(170 LPM)



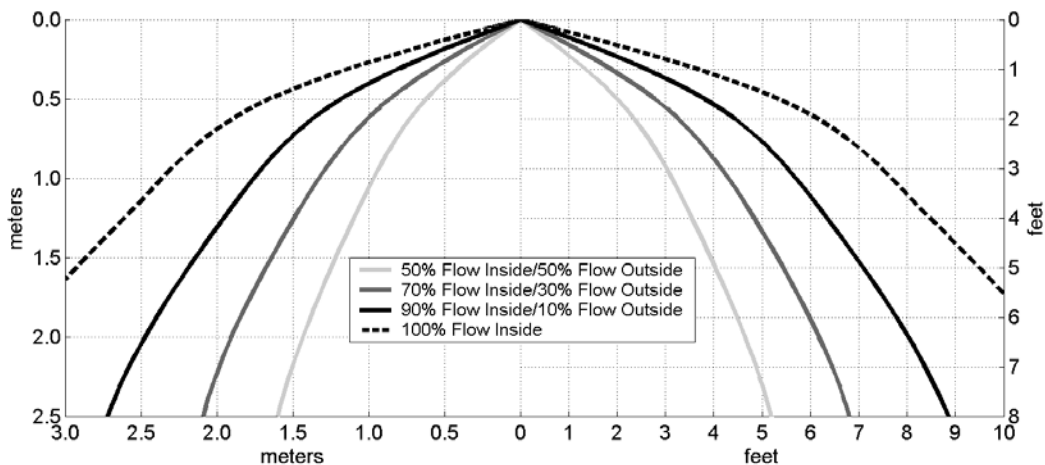
Spray Profile Patterns

Standard Coverage Upright

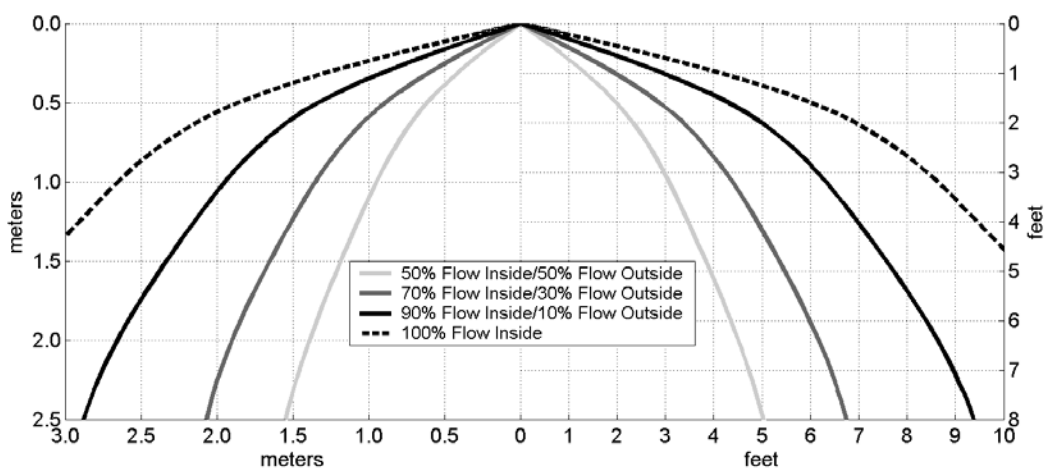
K= 8.0 (K 115), 7 inches (178 mm) Deflector to Ceiling

TY4131, TY-FRB
TY4141, TY-B (4mm)
TY4151, TY-B

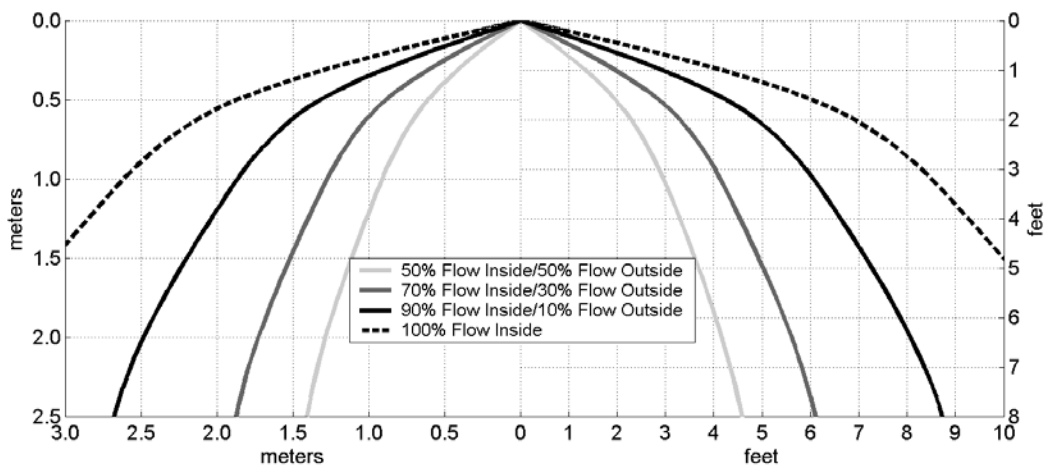
7 PSI
21 GPM
(0.5 Bar)
(80 LPM)



15 PSI
31 GPM
(1.0 Bar)
(120 LPM)



30 PSI
44 GPM
(2.1 Bar)
(170 LPM)

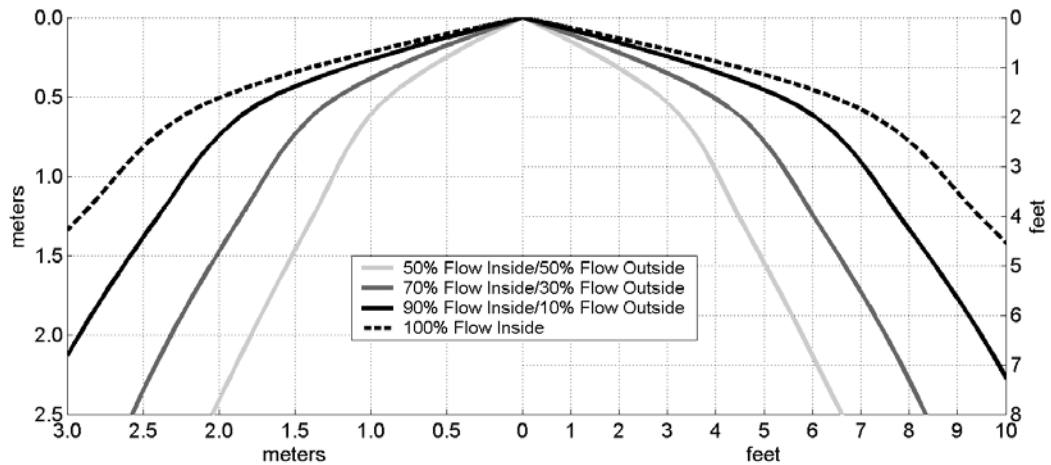


Spray Profile Patterns

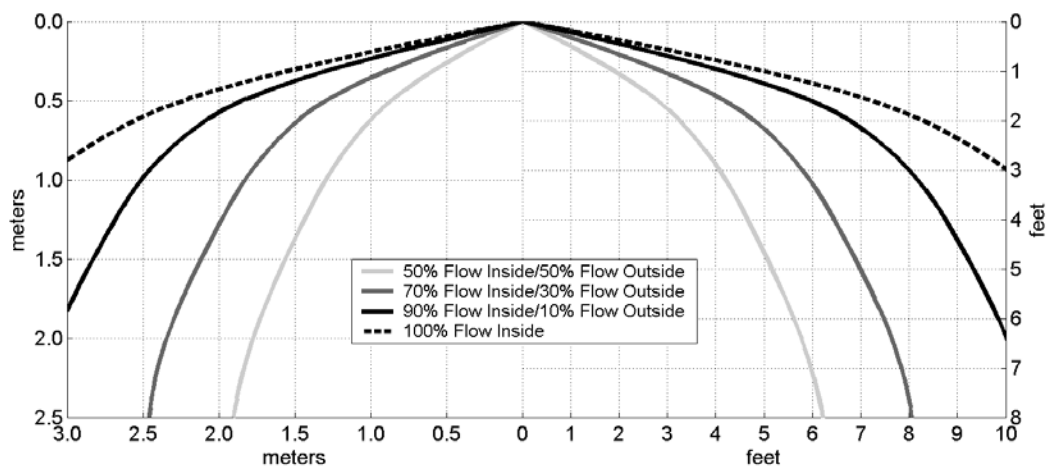
TY4211, TY-L

Standard CoveragePendent
K= 8.0 (K 115), 7 inches (178 mm) Deflector to Ceiling

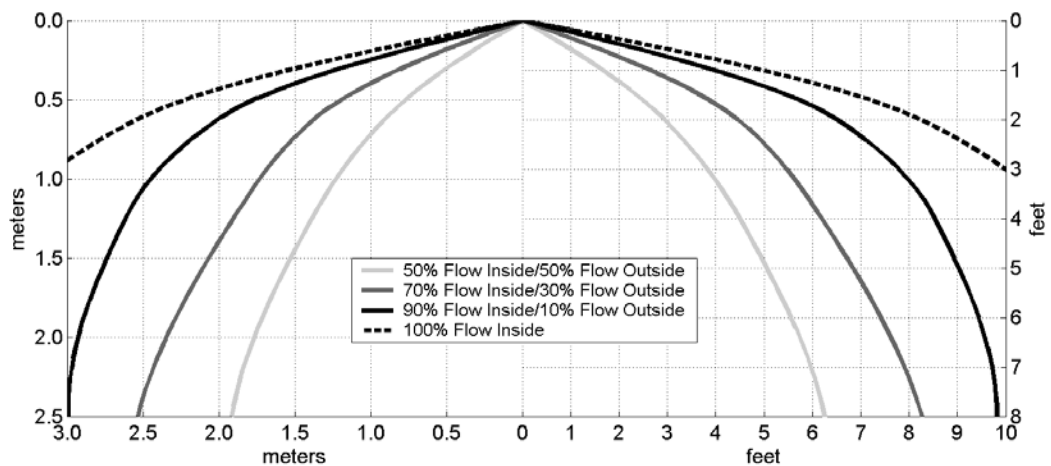
7 PSI
21 GPM
(0.5 Bar)
(80 LPM)



15 PSI
31 GPM
(1.0 Bar)
(120 LPM)



30 PSI
44 GPM
(2.1 Bar)
(170 LPM)

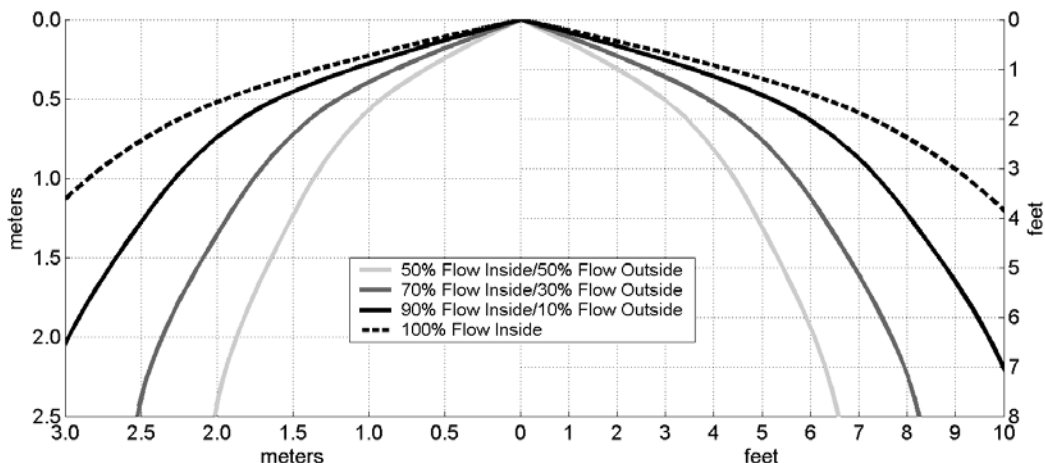


Spray Profile Patterns

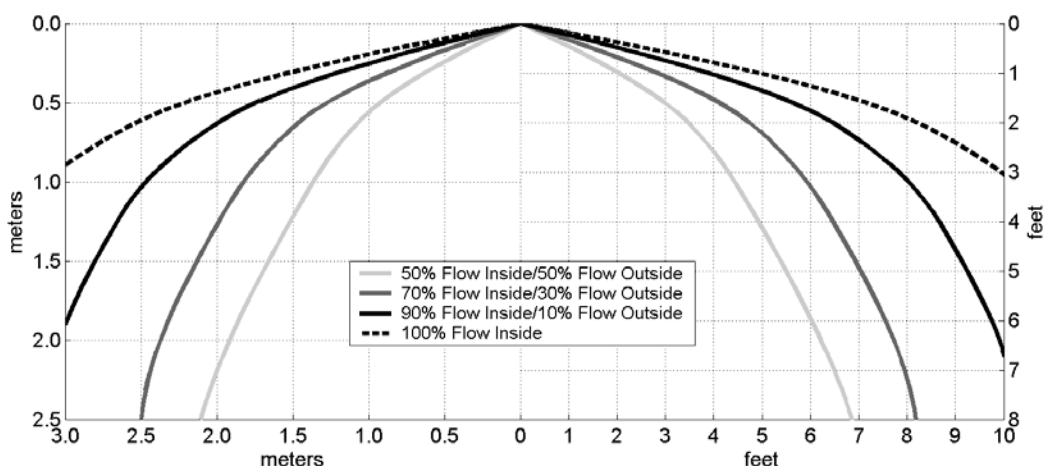
TY4221, TY-FRL

Standard CoveragePendent
K= 8.0 (K 115), 7 inches (178 mm) Deflector to Ceiling

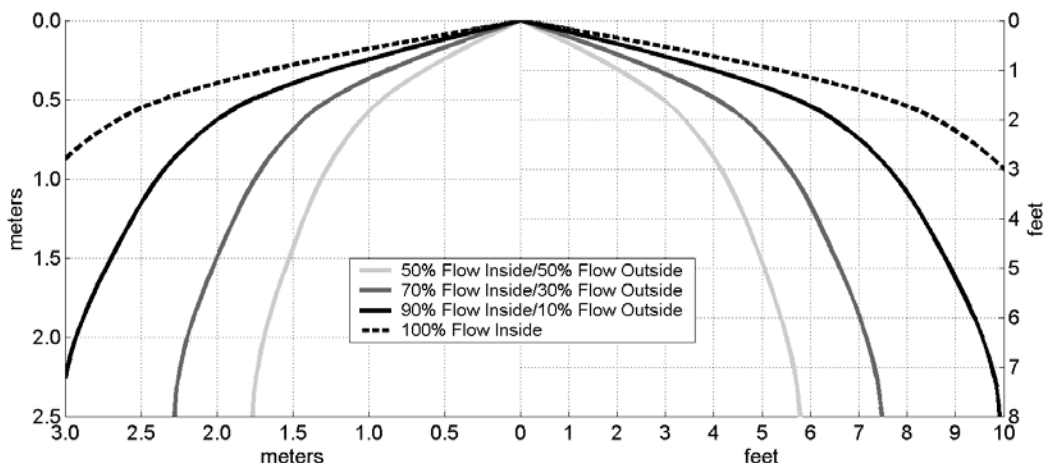
7 PSI
21 GPM
(0.5 Bar)
(80 LPM)



15 PSI
31 GPM
(1.0 Bar)
(120 LPM)



30 PSI
44 GPM
(2.1 Bar)
(170 LPM)



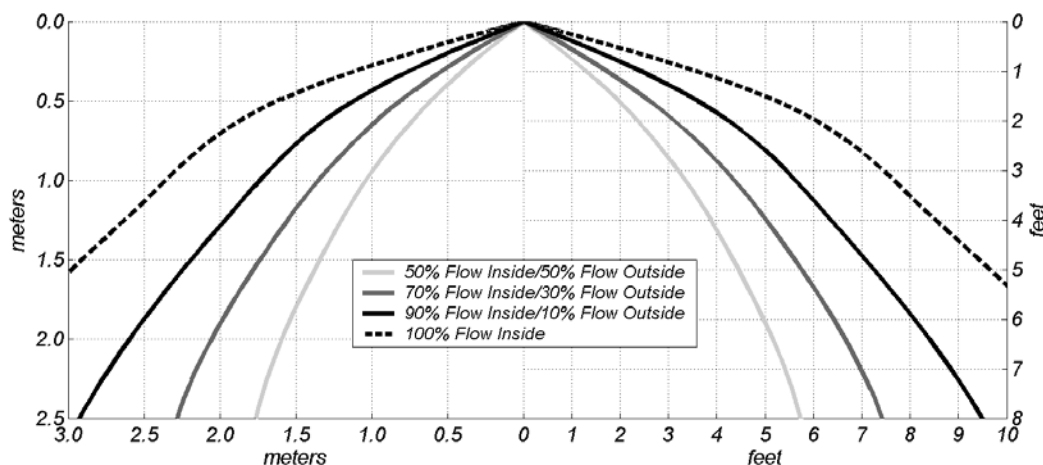
Spray Profile Patterns

Standard CoveragePendent

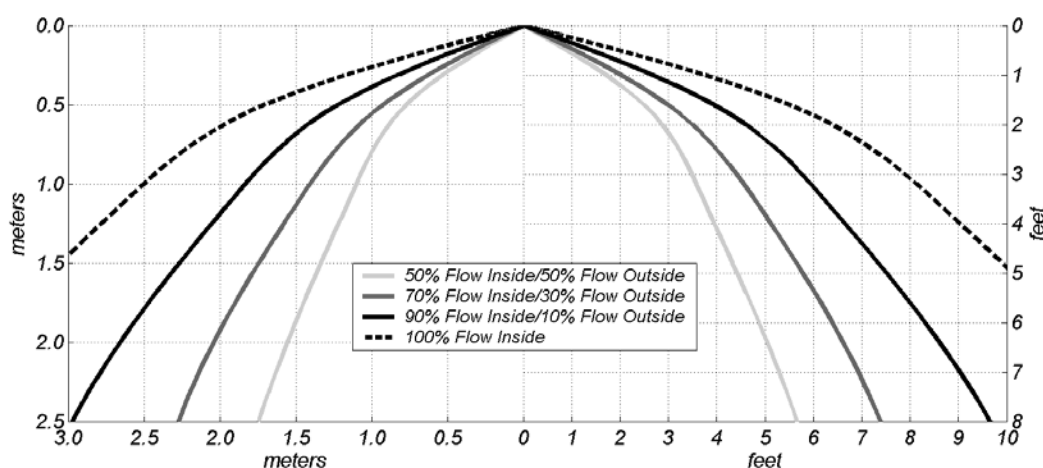
K= 8.0 (K 115), 7 inches (178 mm) Deflector to Ceiling

TY4231, TY-FRB
TY4241, TY-B (4mm)
TY4251, TY-B

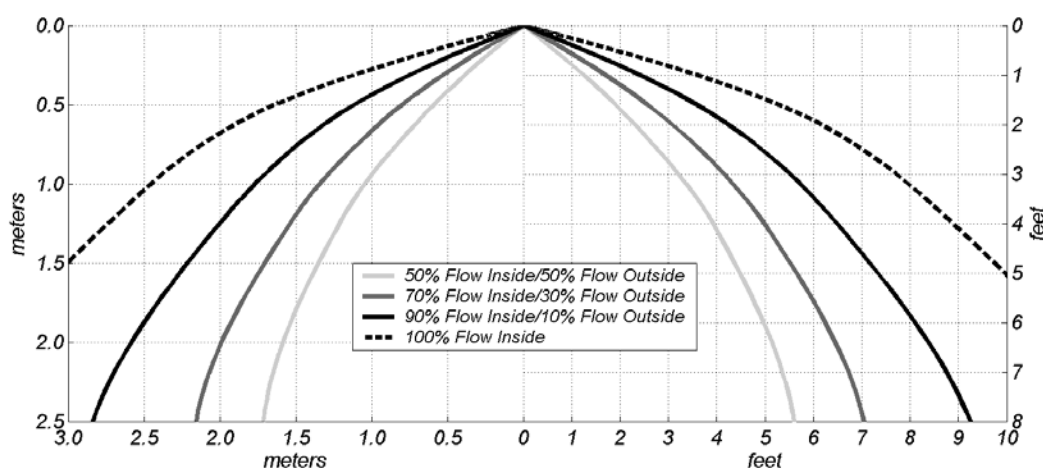
7 PSI
30 GPM
(0.5 Bar)
(110 LPM)



15 PSI
43 GPM
(1.0 Bar)
(160 LPM)



30 PSI
61 GPM
(2.1 Bar)
(230 LPM)



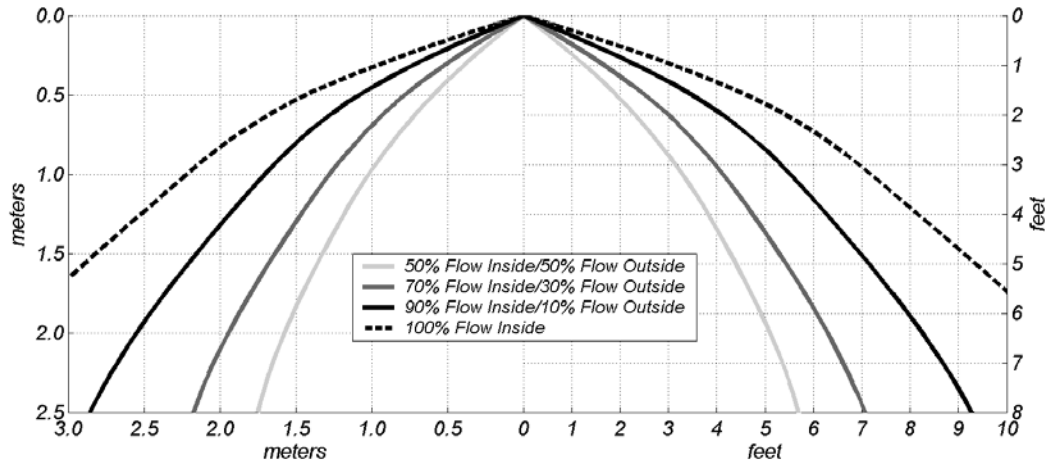
Spray Profile Patterns

Standard Coverage Upright

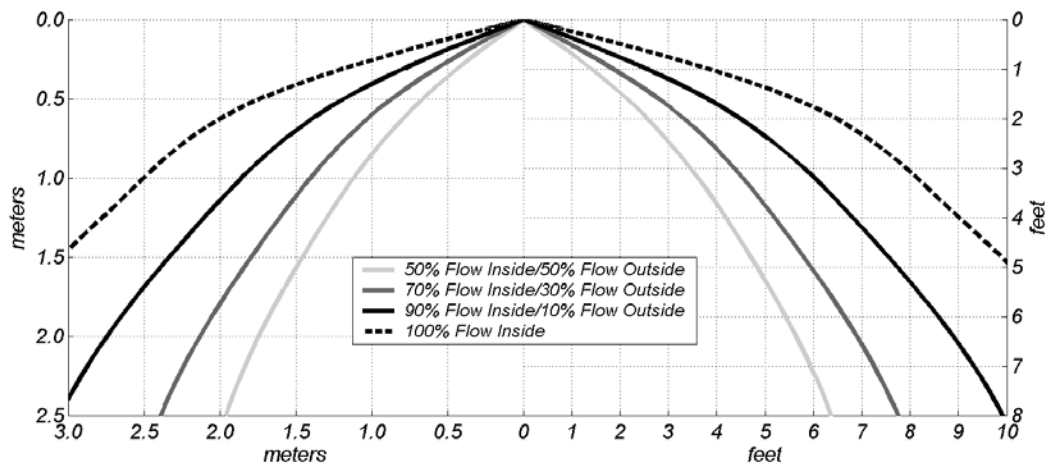
$K = 11.2$ ($K 160$), 7 inches (178 mm) Deflector to Ceiling

TY5111, ELO-231
TY5131, ELO-231FRB
TY5151, ELO-231B

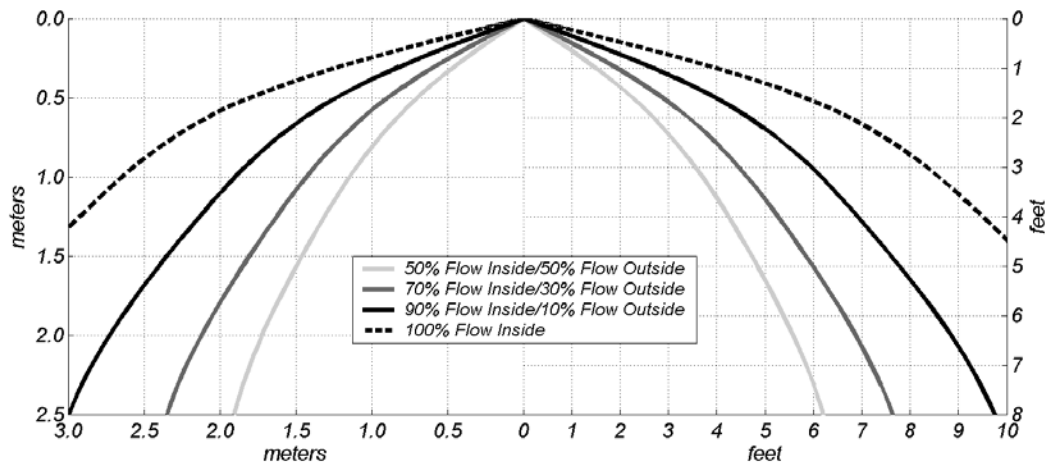
7 PSI
30 GPM
(0.5 Bar)
(110 LPM)



15 PSI
43 GPM
(1.0 Bar)
(160 LPM)



30 PSI
61 GPM
(2.1 Bar)
(230 LPM)



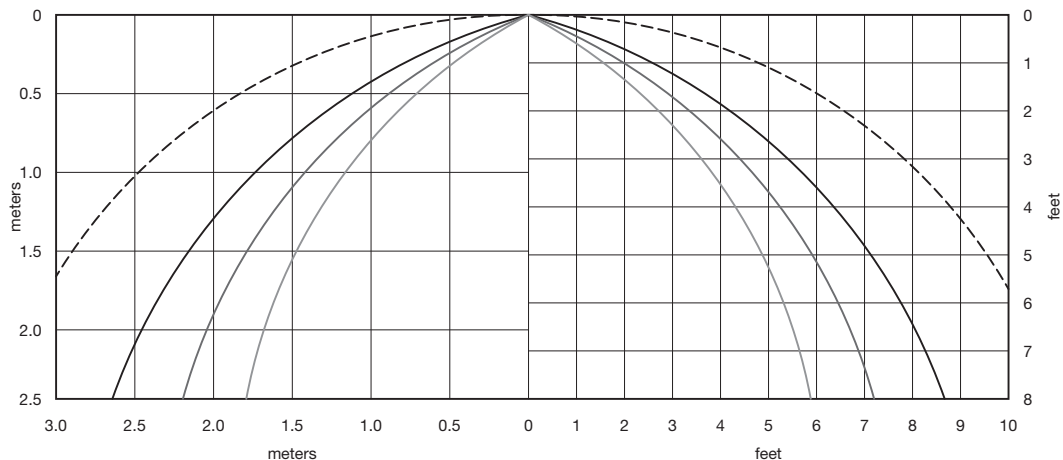
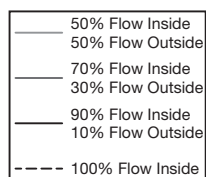
Spray Profile Patterns

Standard Coverage Pendent

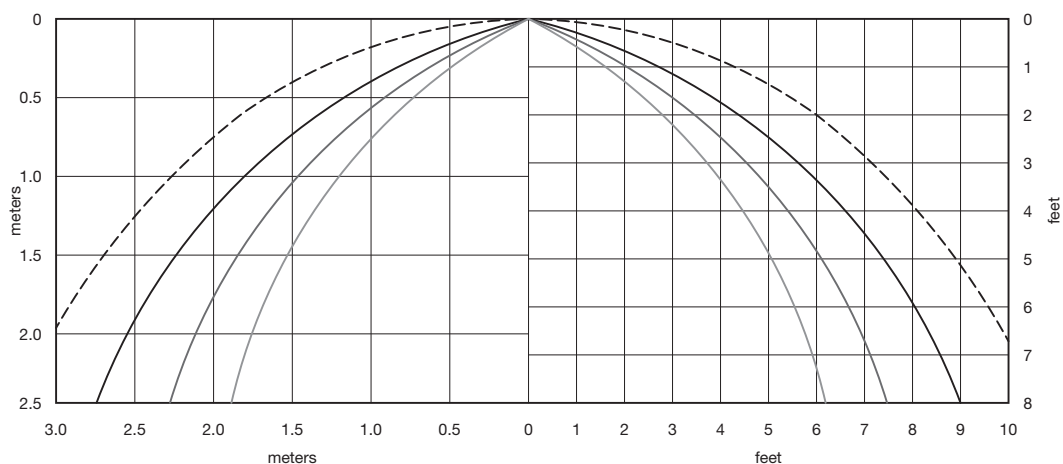
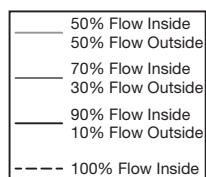
$K = 11.2$ ($K 160$), 7 inches (178 mm) Deflector to Ceiling

TY5211, ELO-231
TY5231, ELO-231FRB
TY5251, ELO-231B

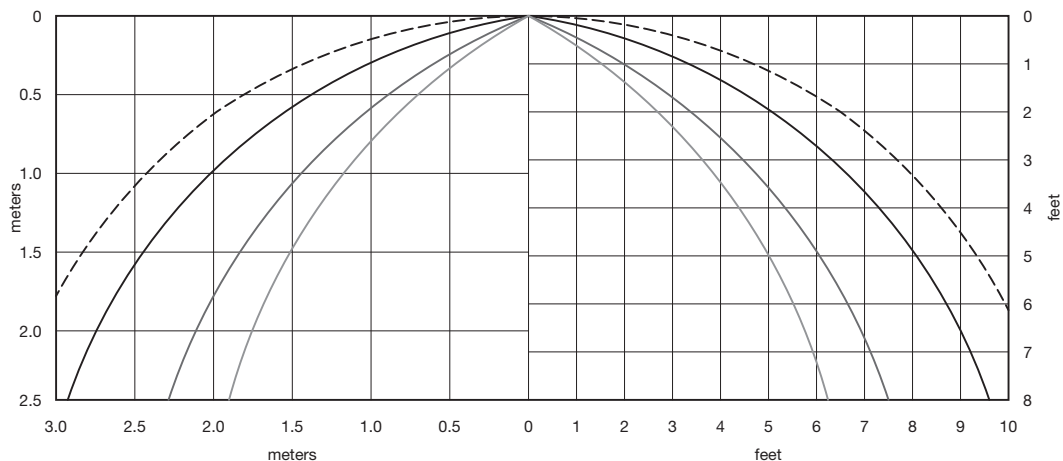
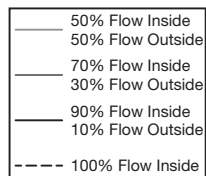
7 PSI
44.5 GPM
(0.5 BAR)
(168.5 LPM)



15 PSI
65.0 GPM
(1 BAR)
(246.1 LPM)



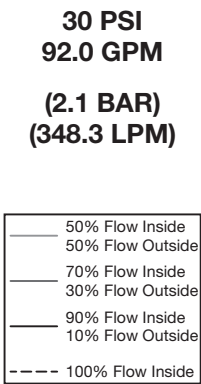
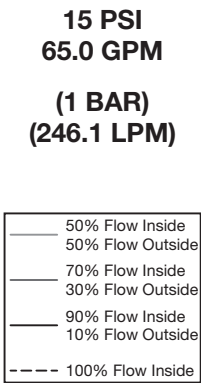
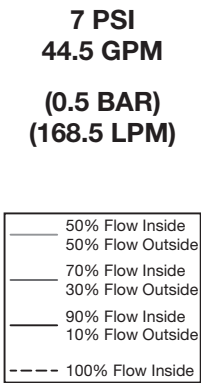
30 PSI
92.0 GPM
(2.1 BAR)
(348.3 LPM)



Spray Profile Patterns

TY7103, Ultra K17, 286°F
TY7153, Ultra K17, 155°F and 200°F
TY7151, K17-231

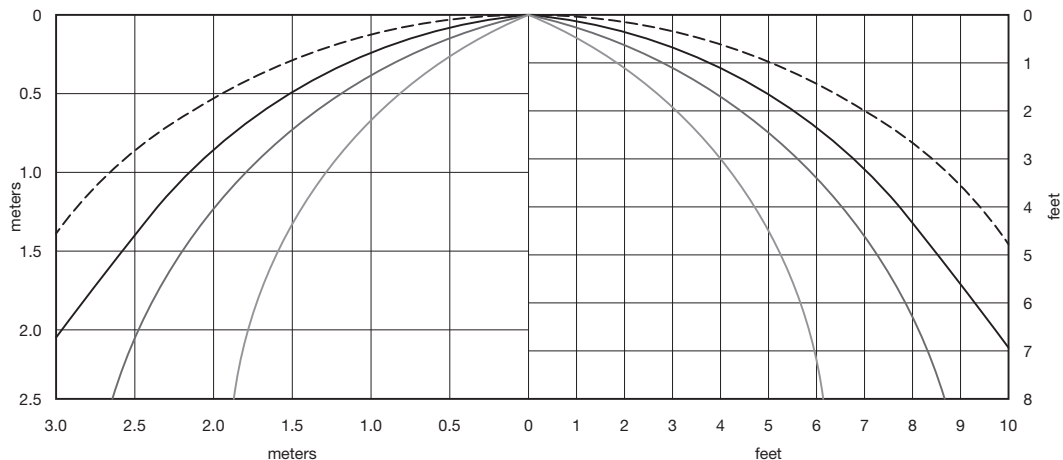
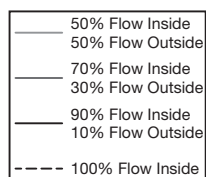
Storage Upright
K=16.8 (K240), 7 Inches (178 mm) Deflector to Ceiling



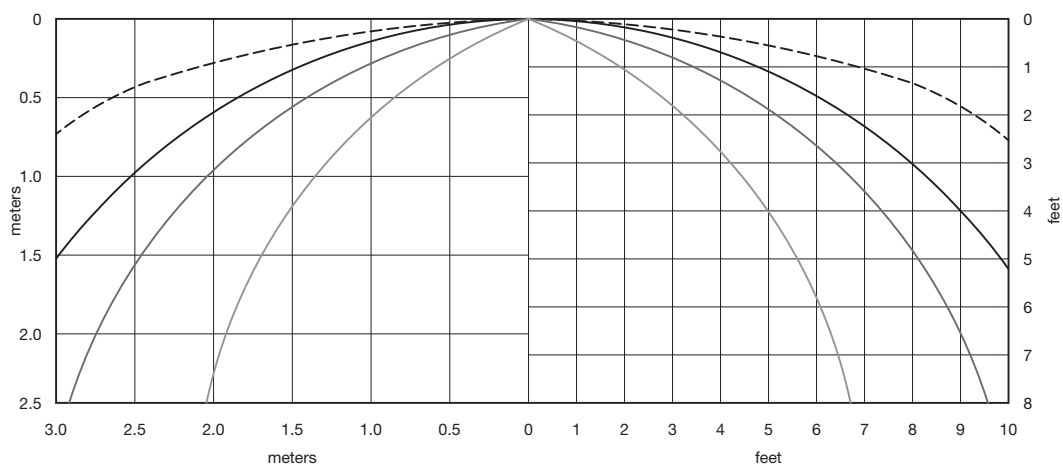
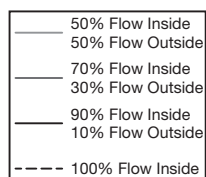
Spray Profile Patterns
TY7251, K17-231

Storage Pendant
K=16.8 (K240), 7 Inches (178 mm) Deflector to Ceiling

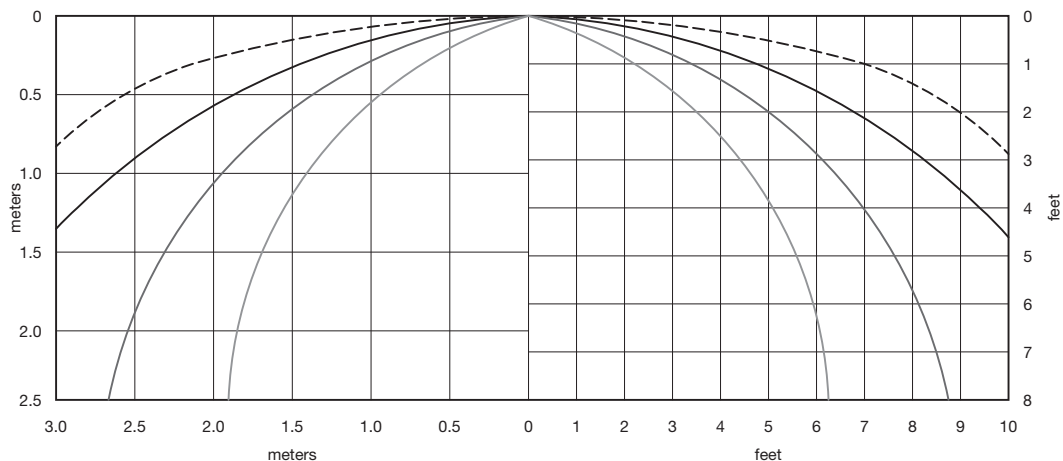
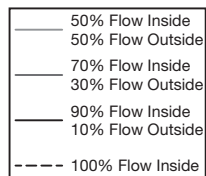
7 PSI
37.1 GPM
(0.5 BAR)
(140.4 LPM)



15 PSI
54.2 GPM
(1 BAR)
(205.2 LPM)



30 PSI
76.7 GPM
(2.1 BAR)
(290.3 LPM)

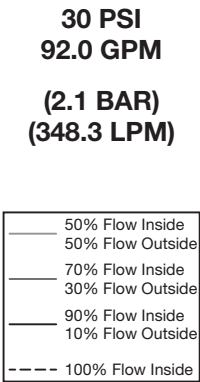
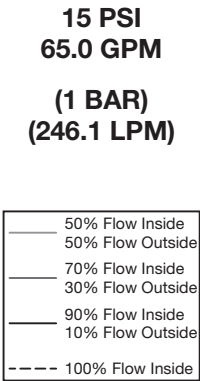
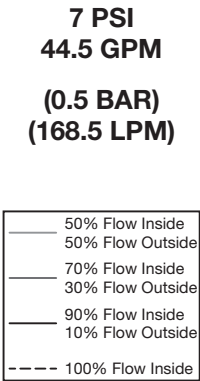


Spray Profile Patterns

TY6226, ESFR-1

Storage Pendant

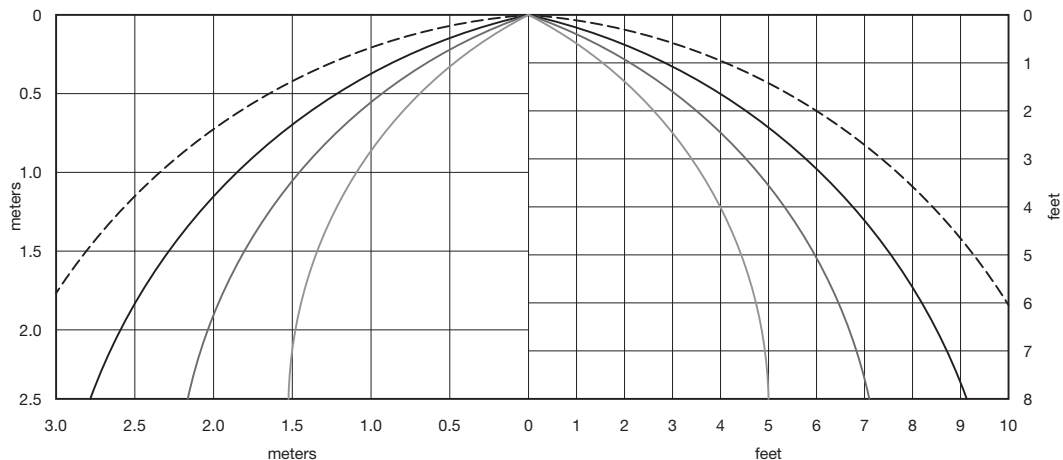
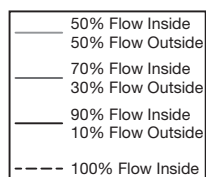
K=14.0 (K200), 7 Inches (178 mm) Deflector to Ceiling



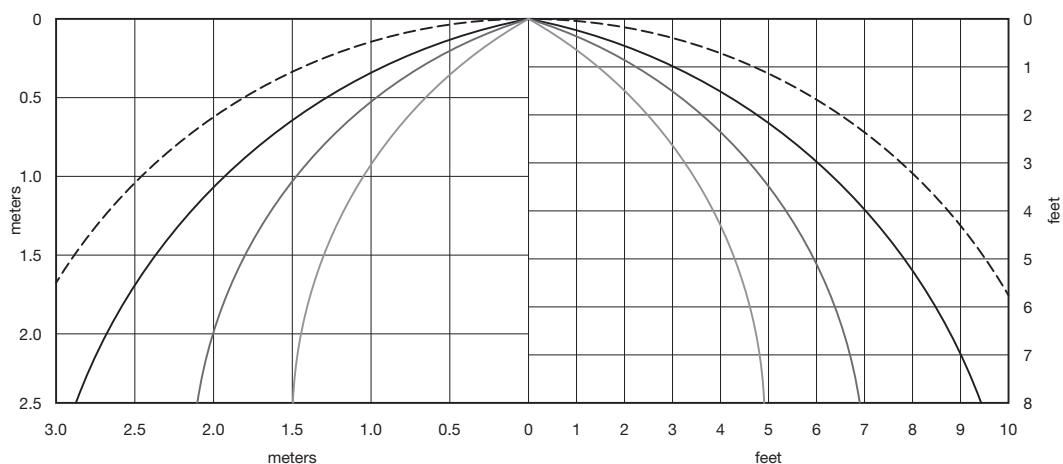
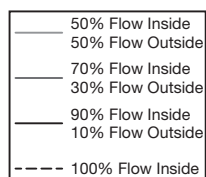
Spray Profile Patterns
TY6236, ESFR-14

Storage Pendent
K=14.0 (K200), 7 Inches (178 mm) Deflector to Ceiling

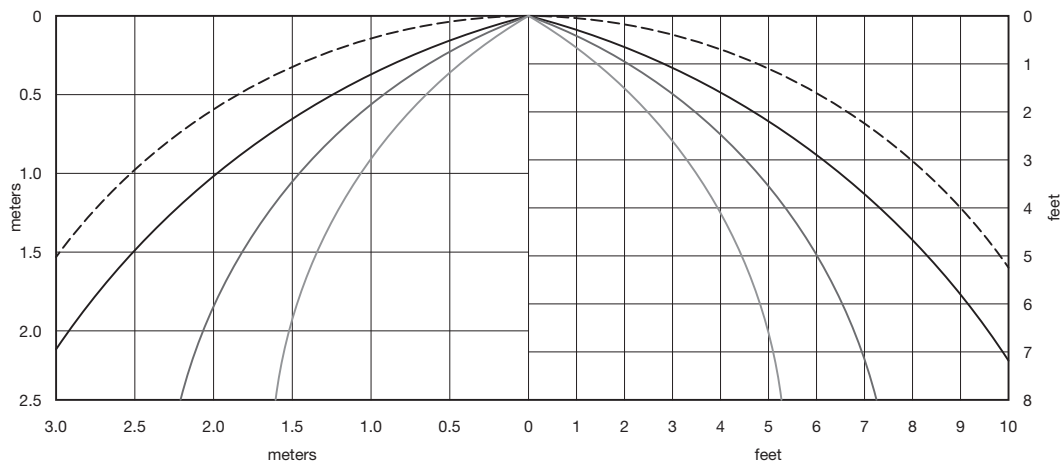
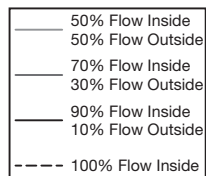
7 PSI
44.5 GPM
(0.5 BAR)
(168.5 LPM)



15 PSI
65.0 GPM
(1 BAR)
(246.1 LPM)



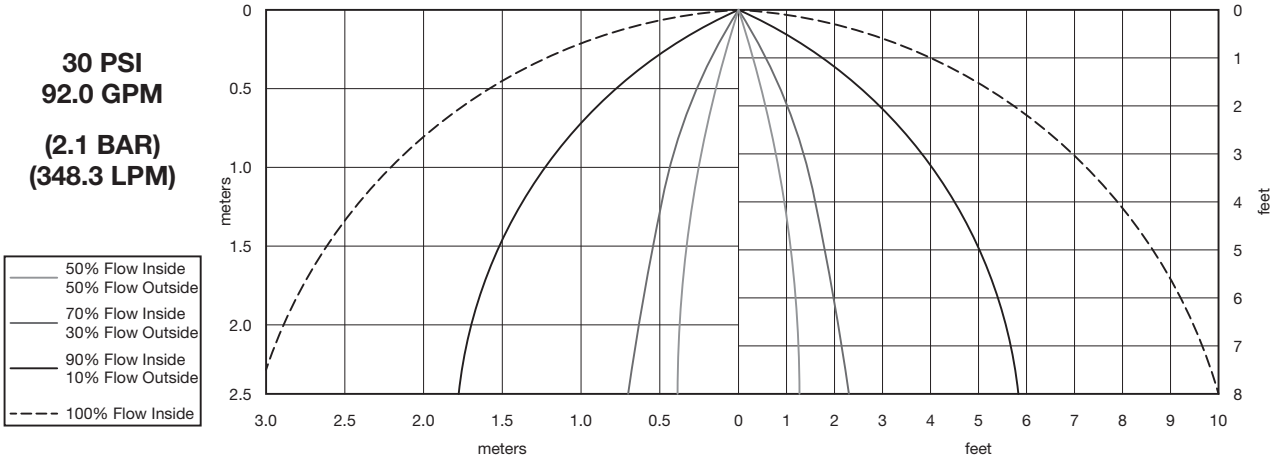
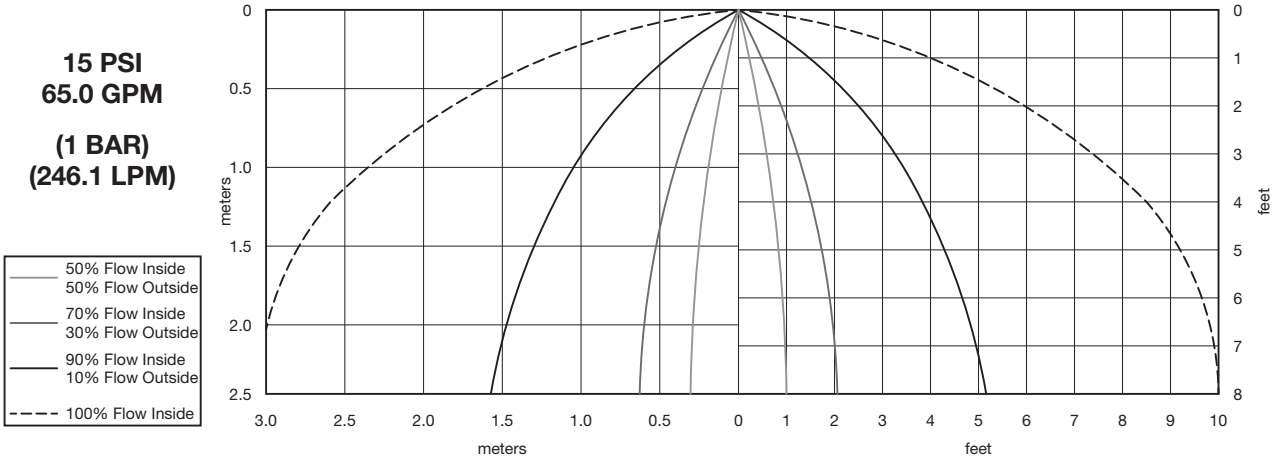
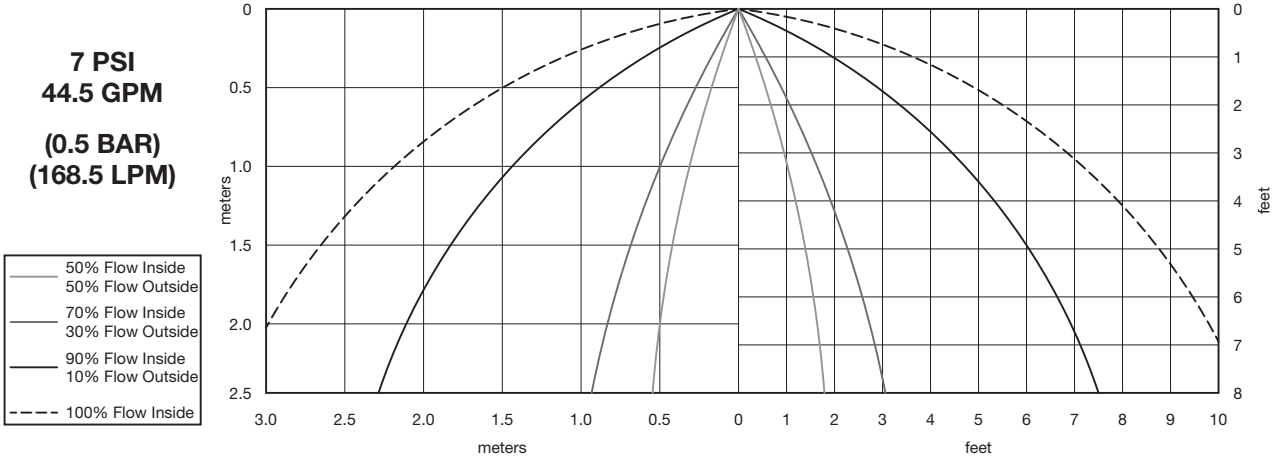
30 PSI
92.0 GPM
(2.1 BAR)
(348.3 LPM)



Spray Profile Patterns

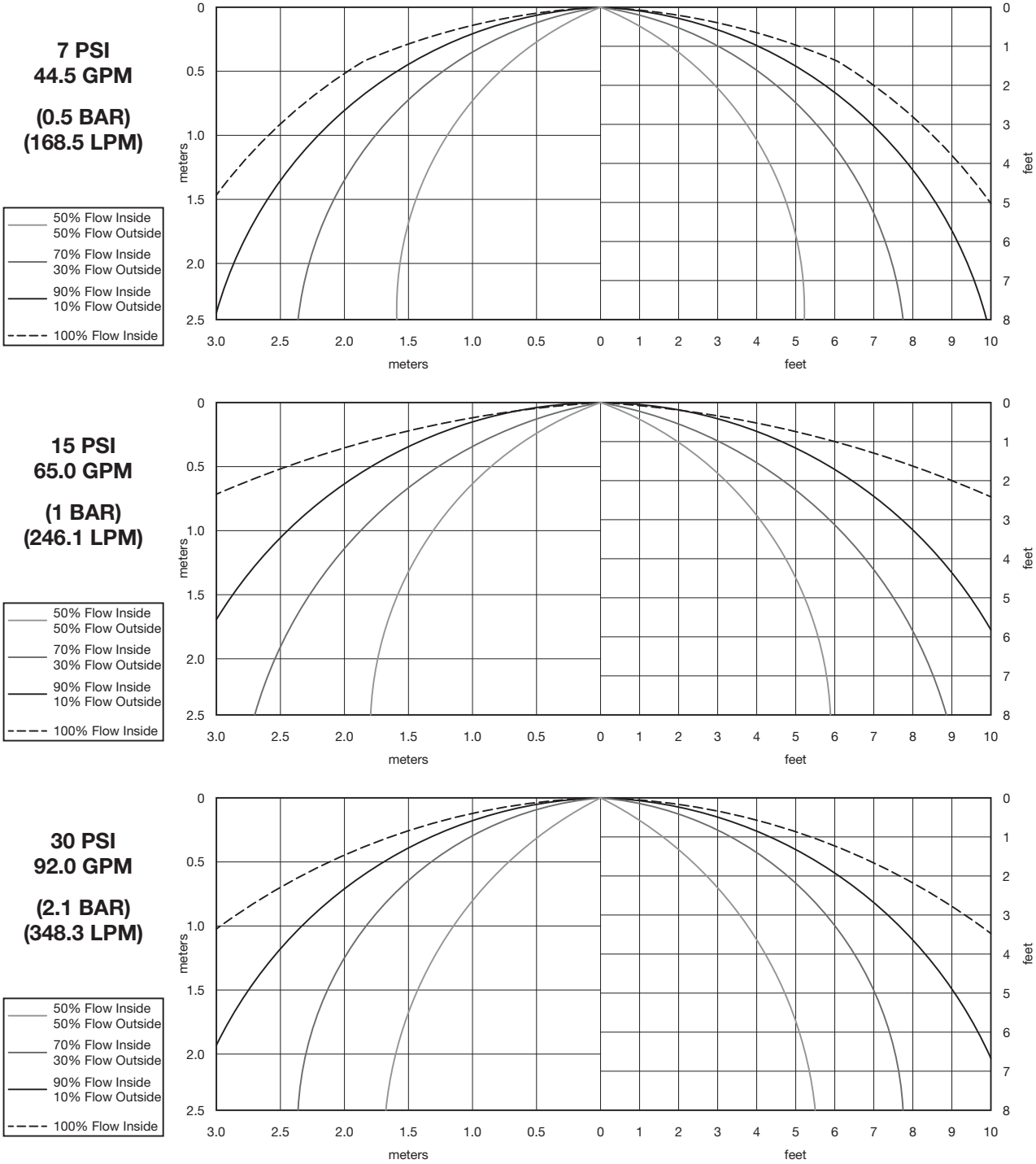
TY7126, ESFR-17

Storage Upright
K=16.8 (K240), 7 Inches (178 mm) Deflector to Ceiling



Spray Profile Patterns
TY7223, ESFR-17

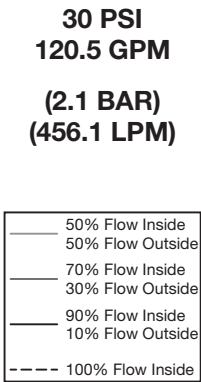
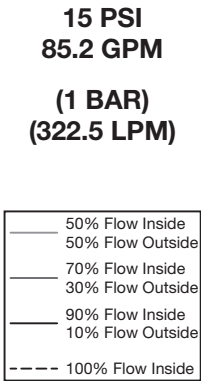
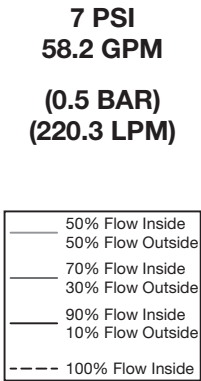
Storage Pendant
K=16.8 (K240), 7 Inches (178 mm) Deflector to Ceiling



Spray Profile Patterns

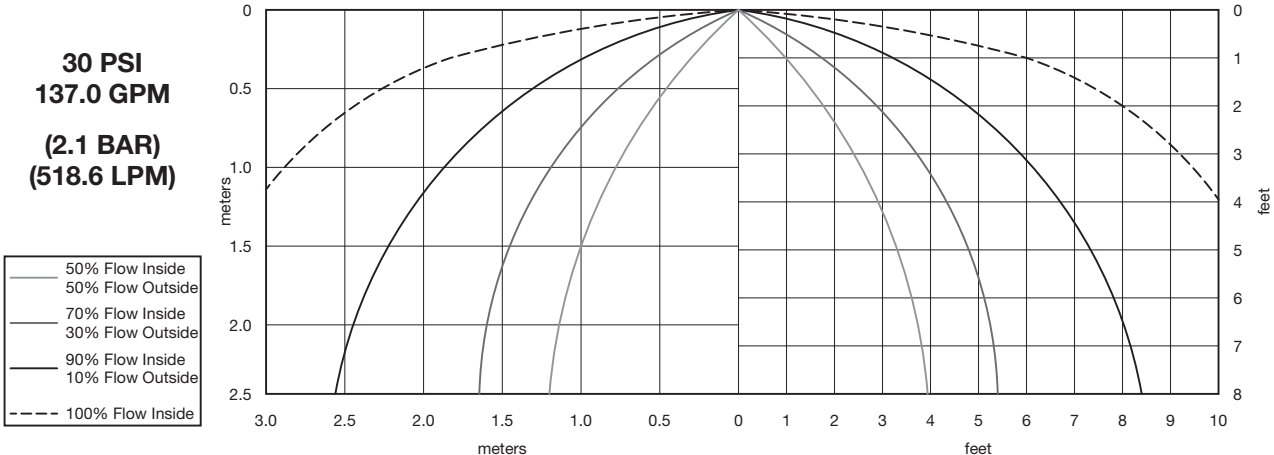
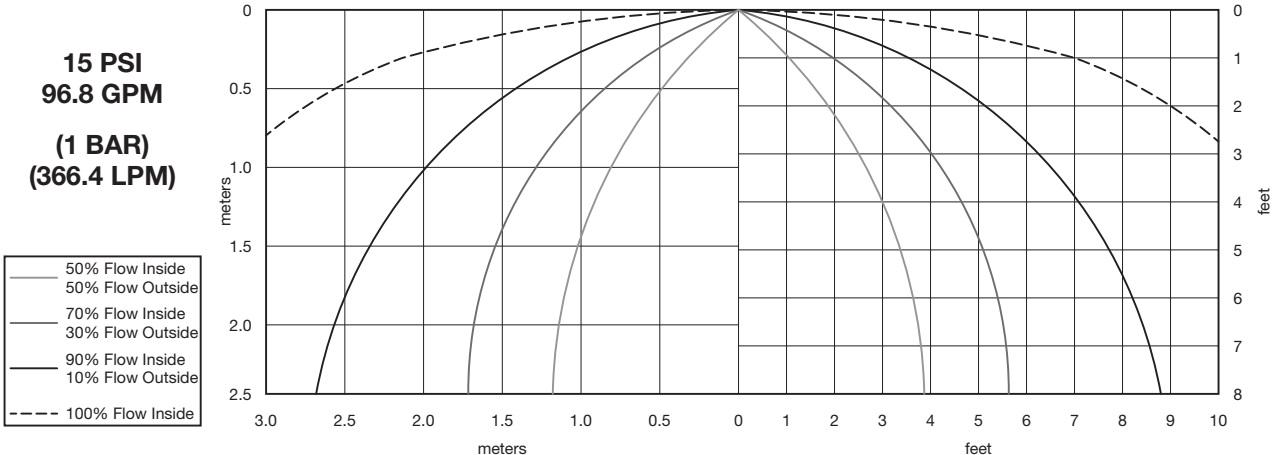
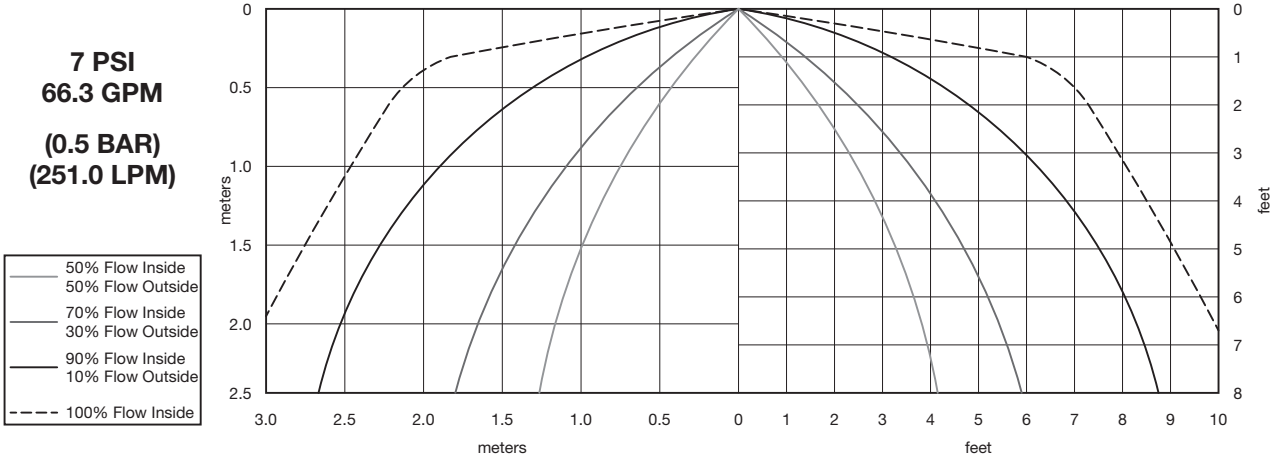
TY7226, ESFR-17

Storage Pendant
K=16.8 (K240), 7 Inches (178 mm) Deflector to Ceiling



Spray Profile Patterns
TY8223, ESFR-22

Storage Pendent
K=22.4 (K320), 7 Inches (178 mm) Deflector to Ceiling

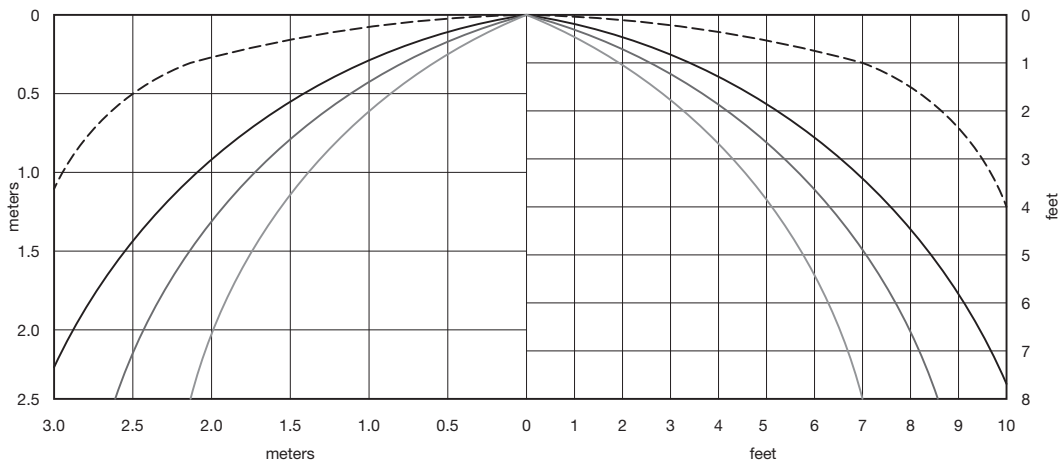
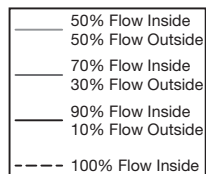


Spray Profile Patterns

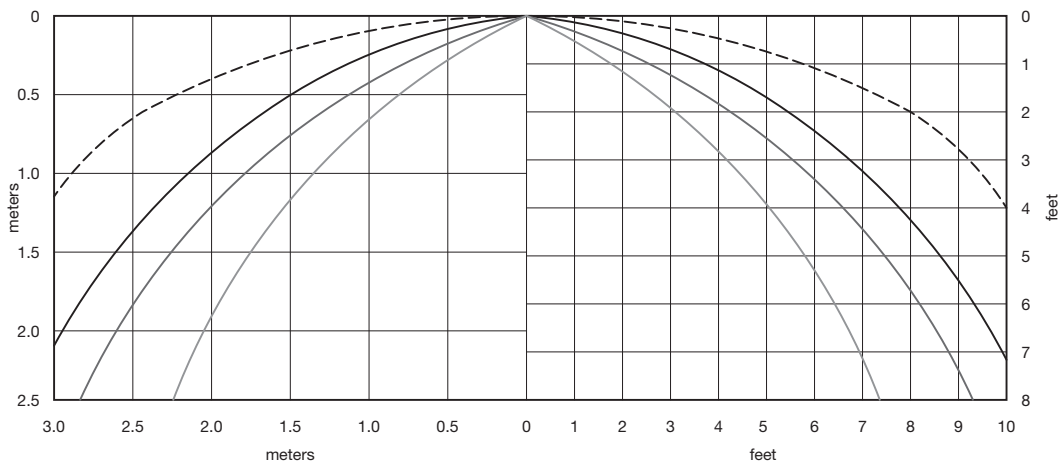
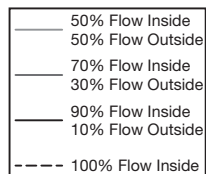
TY9226, ESFR-25

Storage Pendant
K=25.2 (K360), 7 Inches (178 mm) Deflector to Ceiling

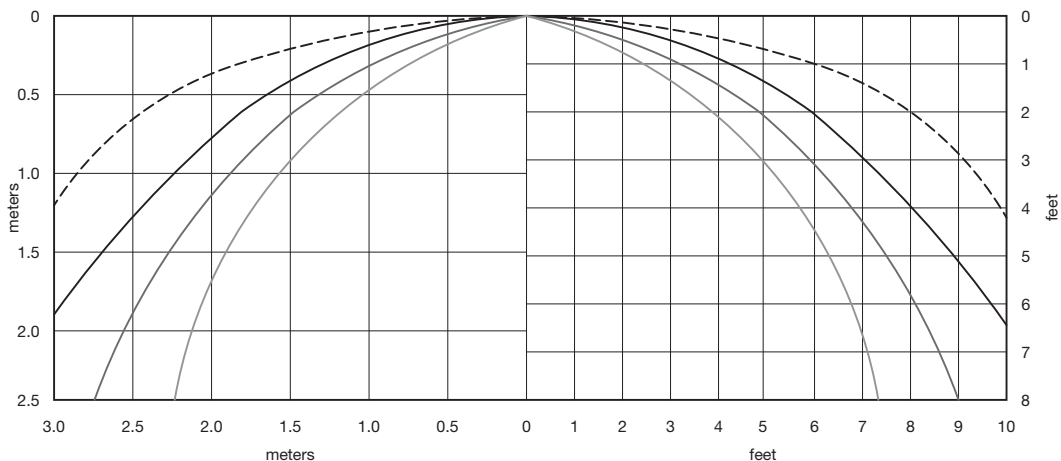
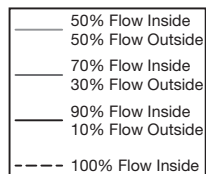
7 PSI
66.3 GPM
(0.5 BAR)
(251.0 LPM)



15 PSI
96.8 GPM
(1 BAR)
(366.4 LPM)



30 PSI
137.0 GPM
(2.1 BAR)
(518.6 LPM)

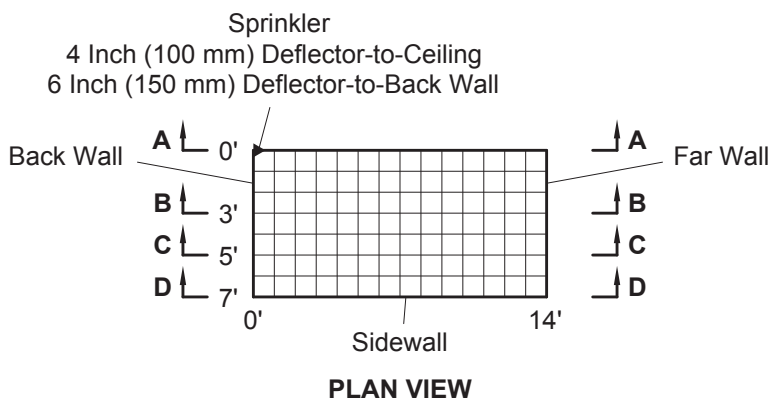
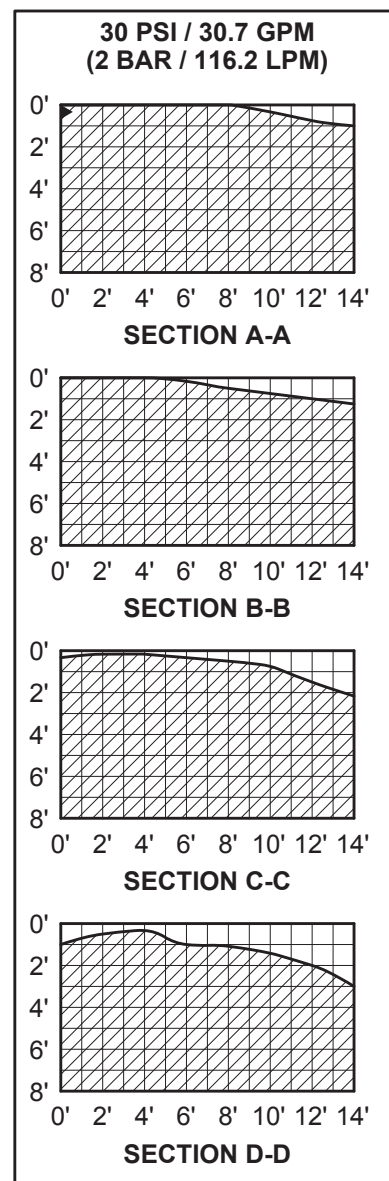
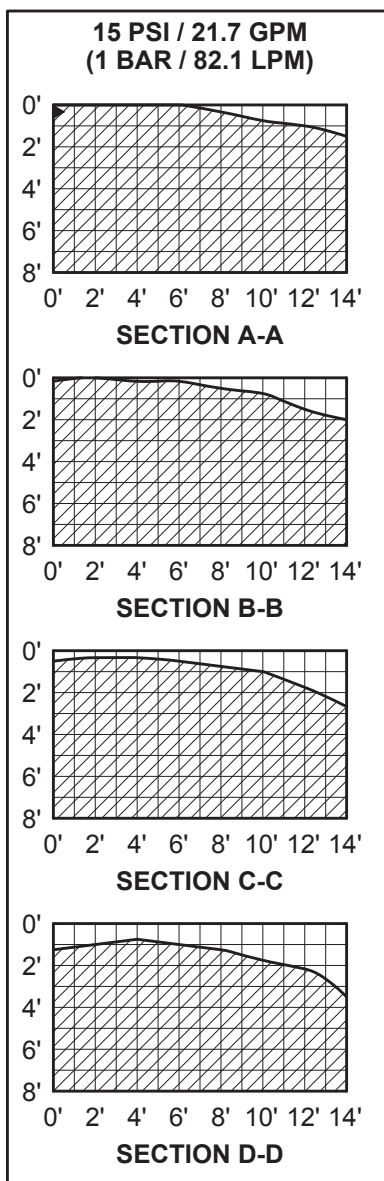
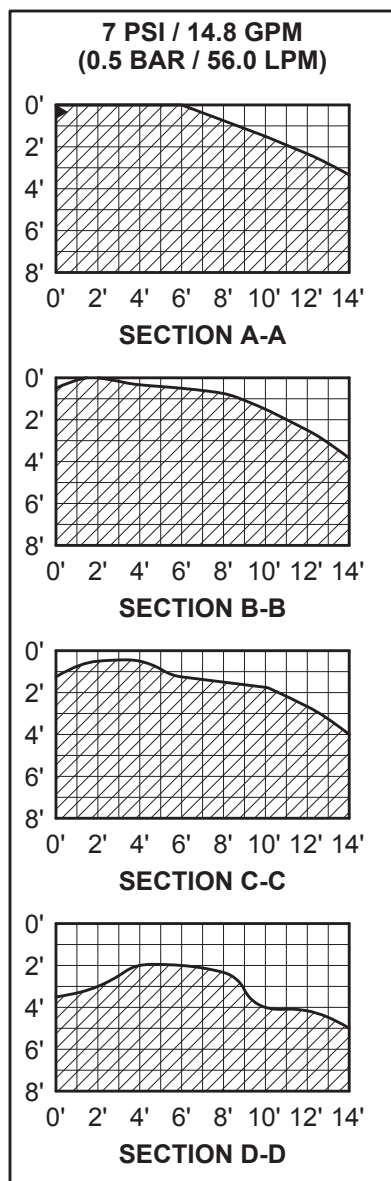


Spray Profile Patterns

TY9128, EC-25

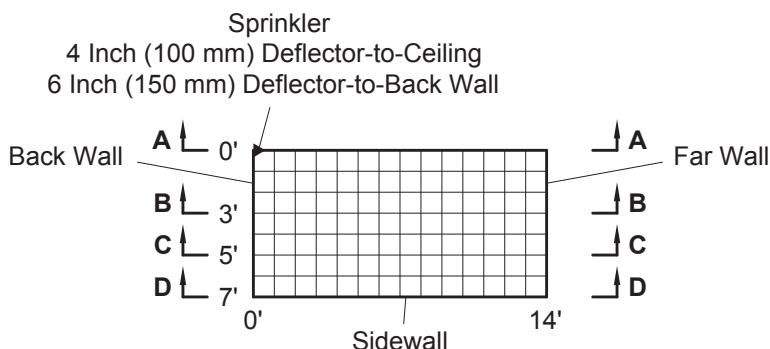
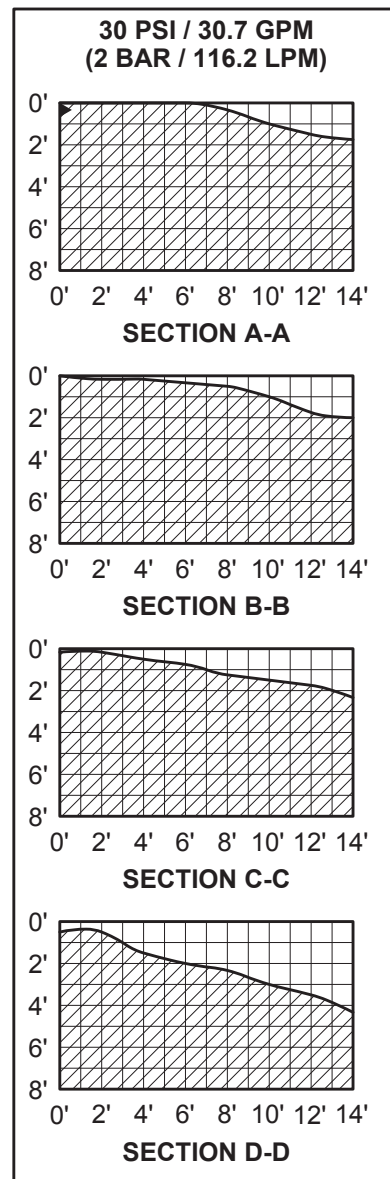
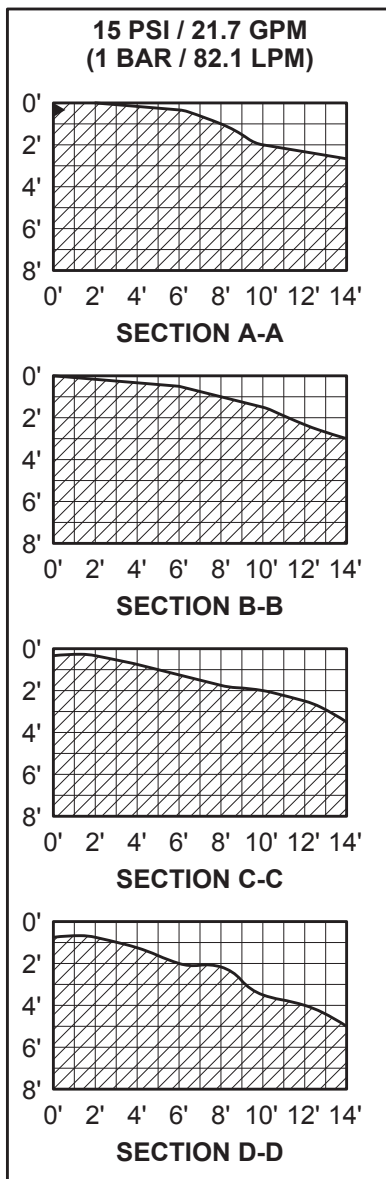
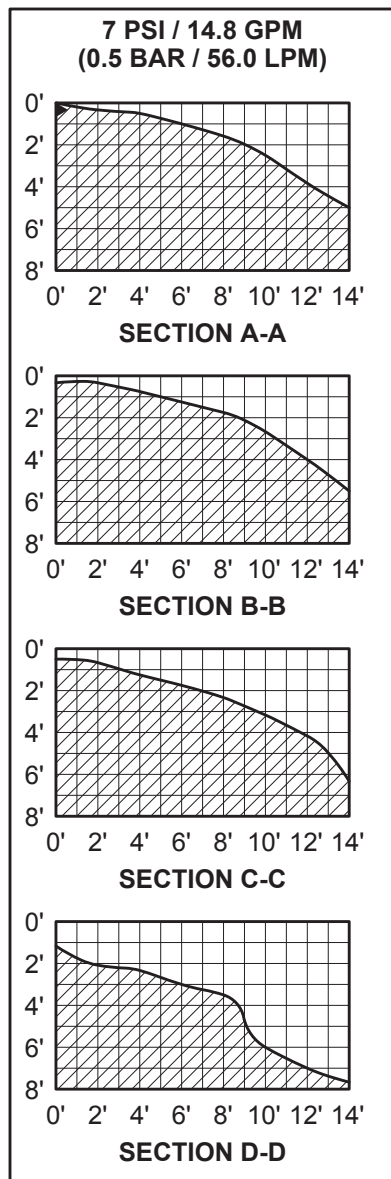
Storage Upright

K=25.2 (K360), 7 Inches (178 mm) Deflector to Ceiling



CROSS SECTIONAL PATTERNS

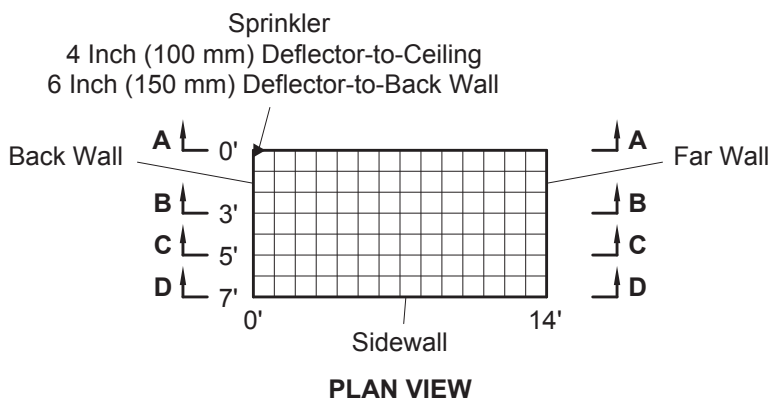
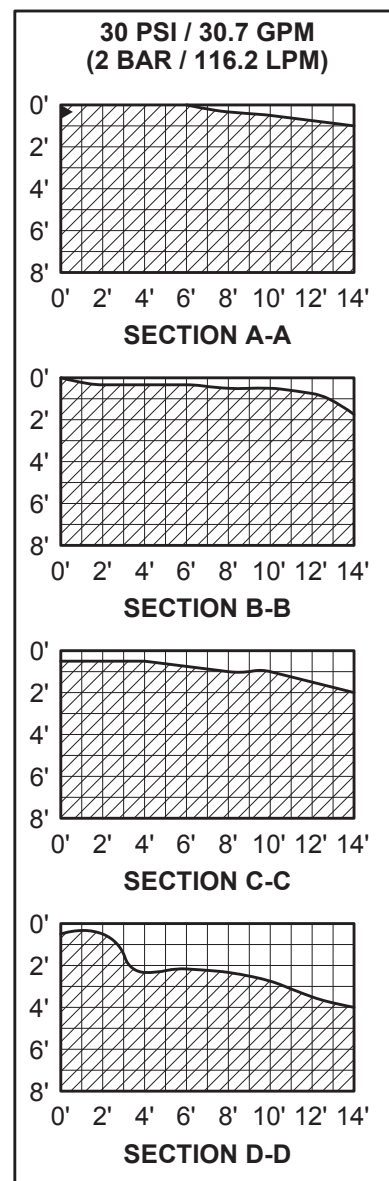
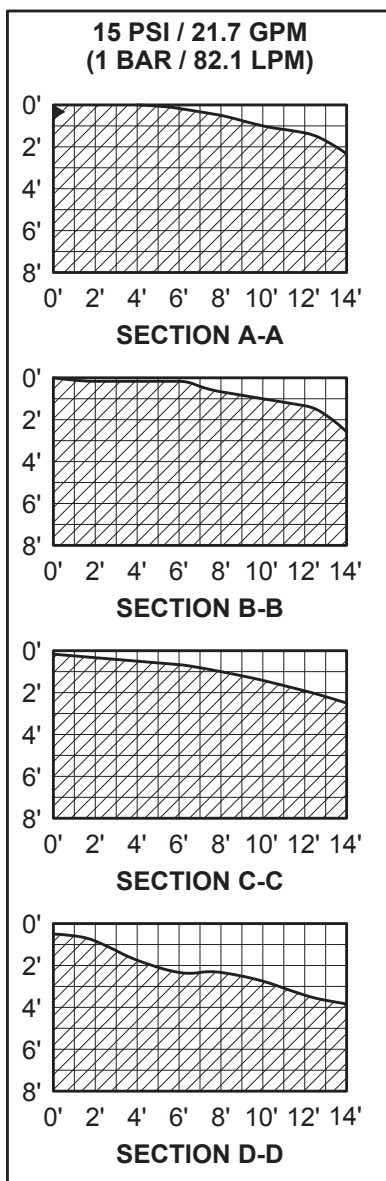
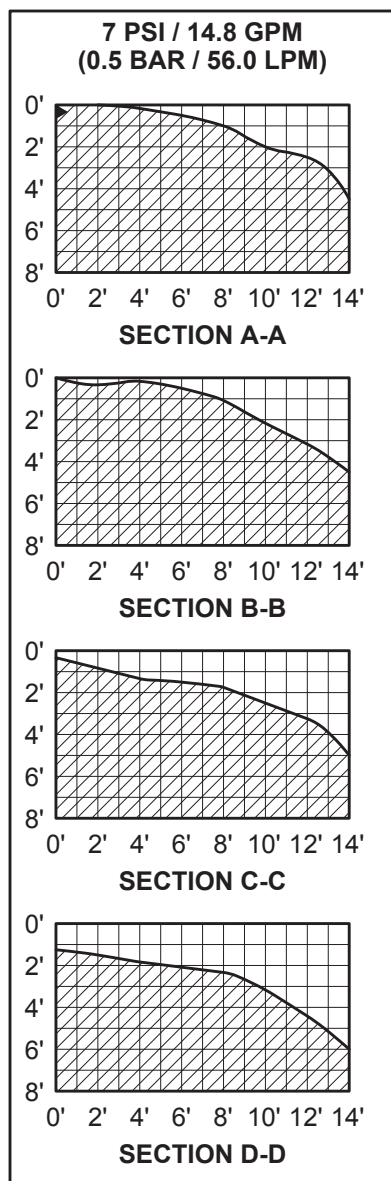
K=5.6 (K80), Standard Coverage
Horizontal Sidewall Sprinkler
SIN TY3311, Series TY-L



PLAN VIEW

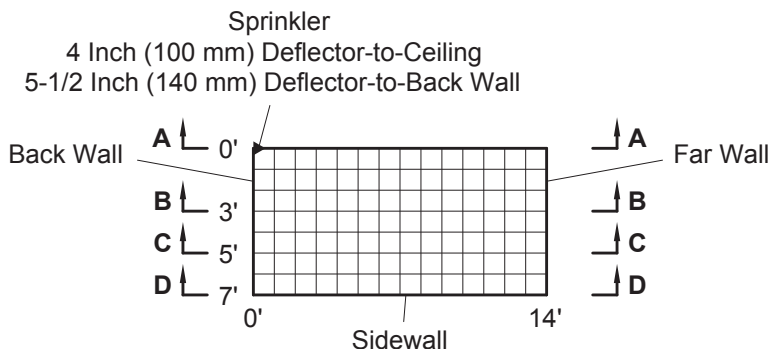
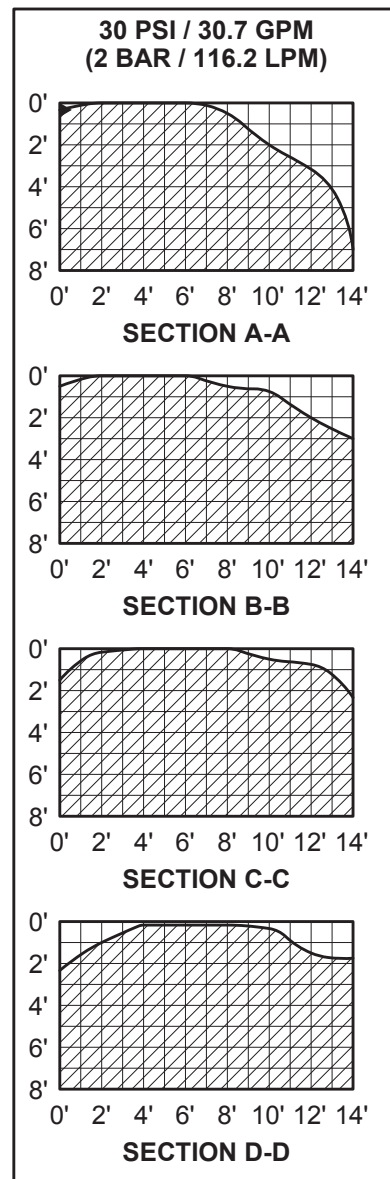
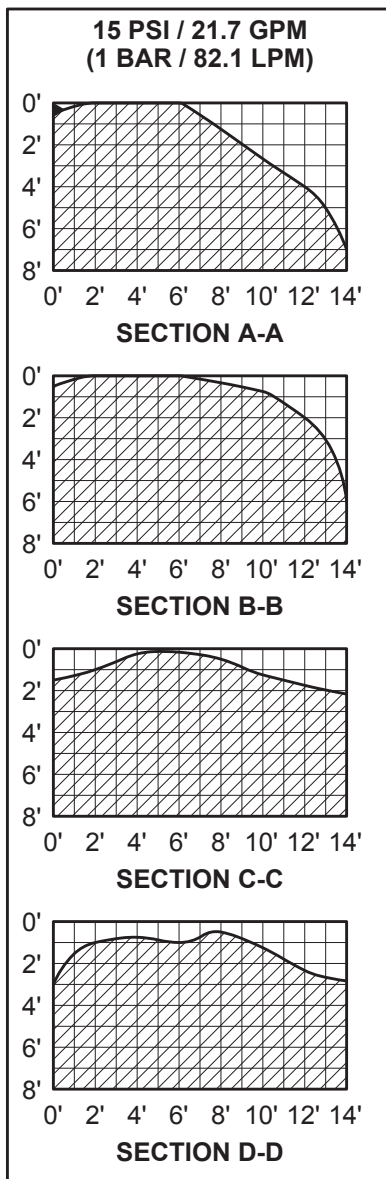
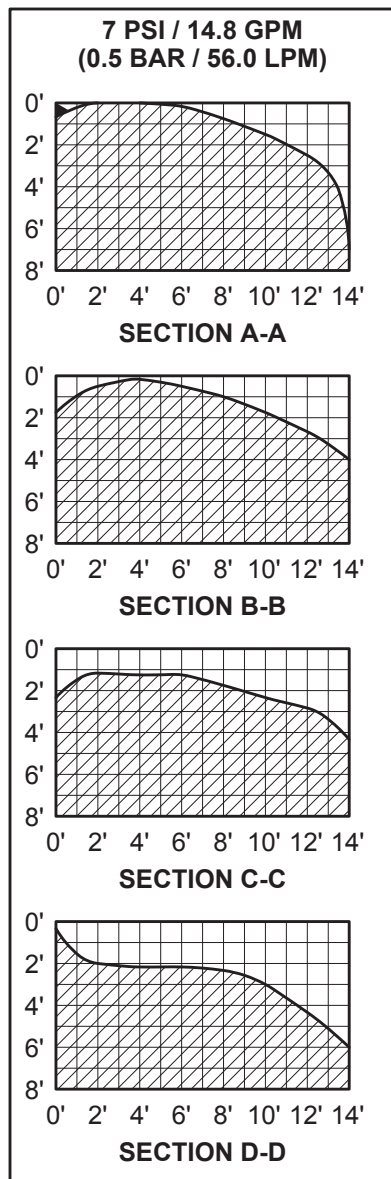
CROSS SECTIONAL PATTERNS

K=5.6 (K80), Standard Coverage
Horizontal Sidewall Sprinkler
SIN TY3321, Series TY-FRL



CROSS SECTIONAL PATTERNS

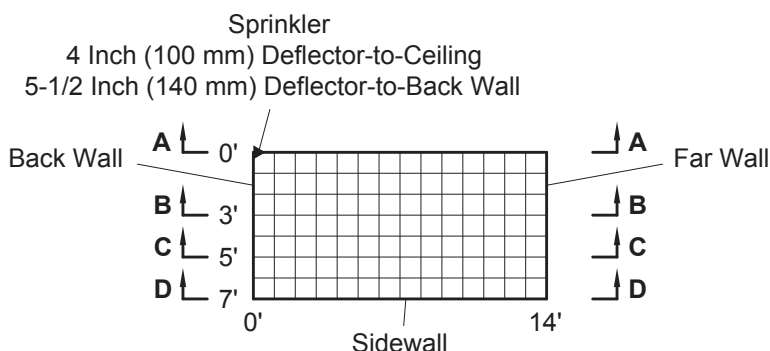
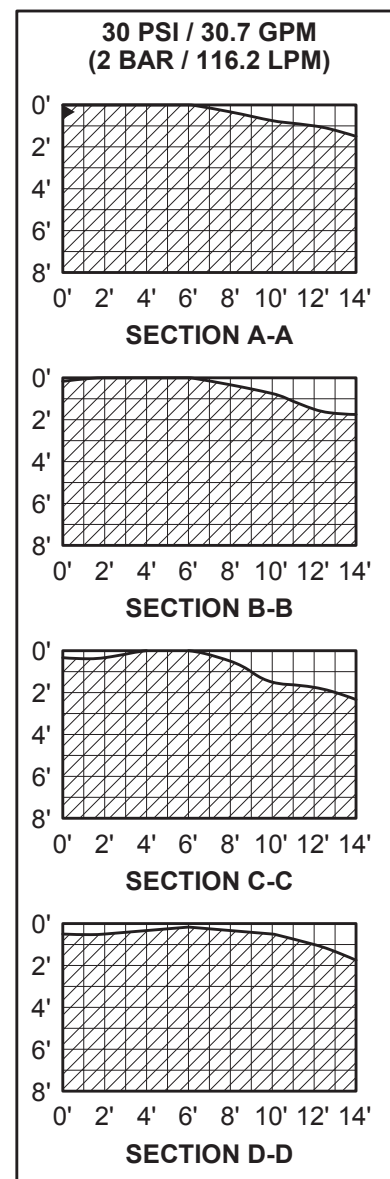
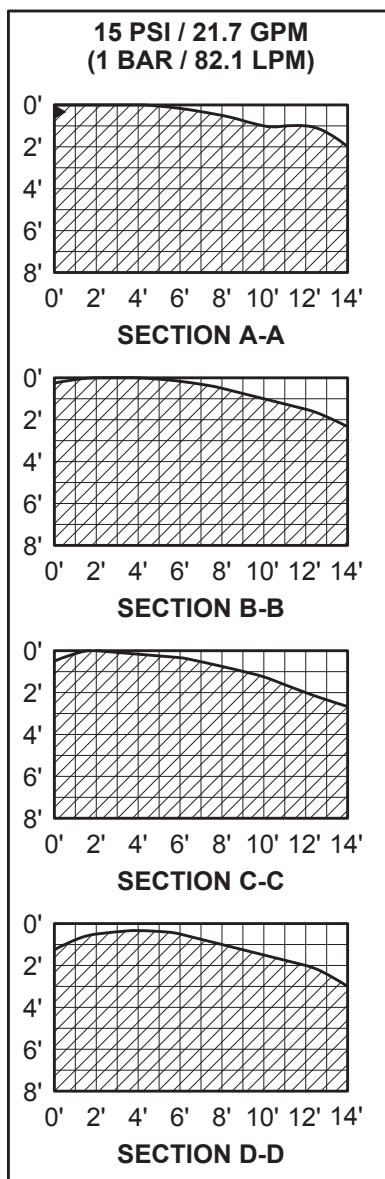
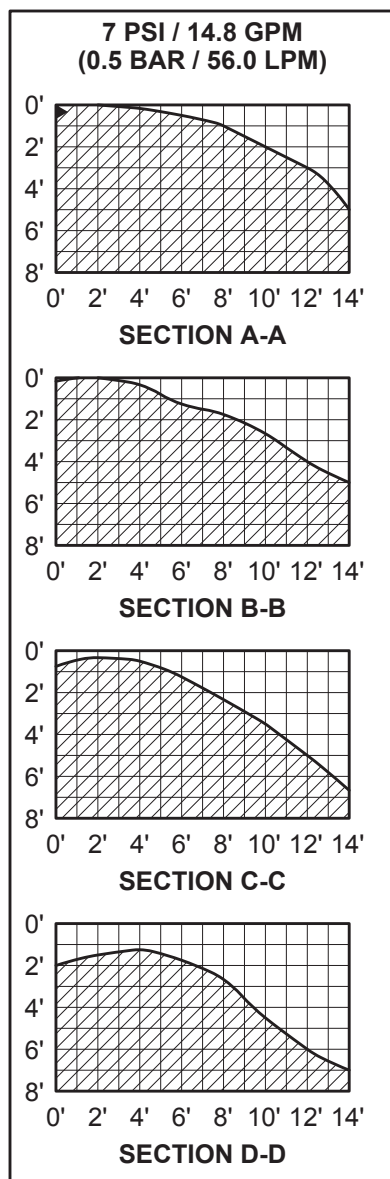
K=5.6 (K80), Standard Coverage
Horizontal Sidewall Sprinkler
SIN TY3331, Series TY-FRB
SIN TY3351, Series TY-B



PLAN VIEW

CROSS SECTIONAL PATTERNS

K=5.6 (K80), Standard Coverage
Vertical Sidewall Sprinkler (Installed in Upright Position)
SIN TY3431, Series TY-FRB
SIN TY3451, Series TY-B

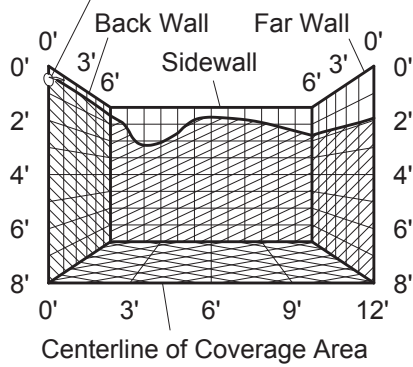


PLAN VIEW

CROSS SECTIONAL PATTERNS

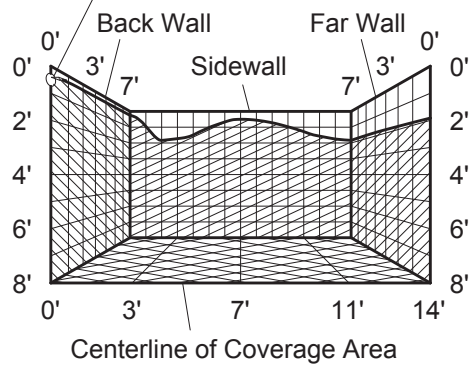
K=5.6 (K80), Standard Coverage
Vertical Sidewall Sprinkler (Installed in Pendent Position)
SIN TY3431, Series TY-FRB
SIN TY3451, Series TY-B

Sprinkler, 4" (100 mm) Deflector-to-Ceiling



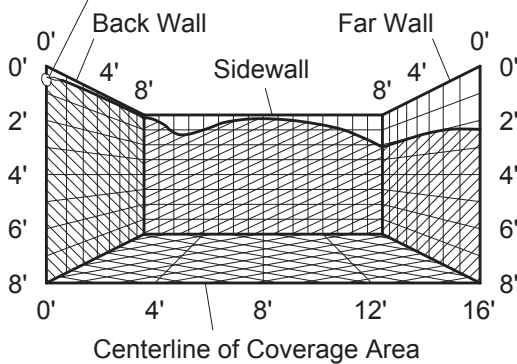
12' x 12' (3.7 m x 3.7 m) Maximum Coverage Area
12 GPM (45.4 LPM) Flow

Sprinkler, 4" (100 mm) Deflector-to-Ceiling



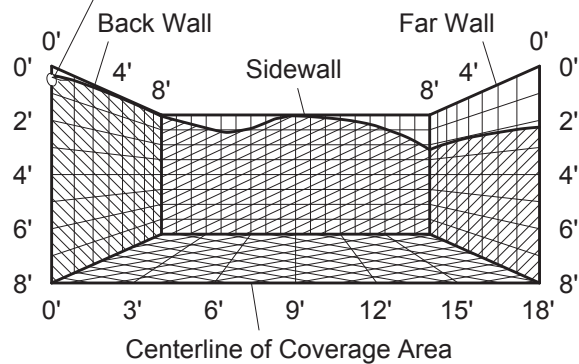
14' x 14' (4.3 m x 4.3 m) Maximum Coverage Area
14 GPM (53.0 LPM) Flow

Sprinkler, 4" (100 mm) Deflector-to-Ceiling



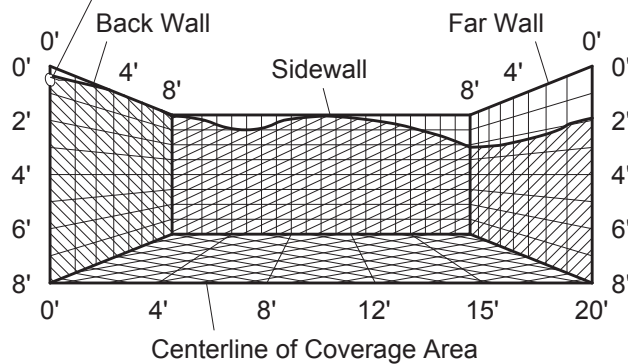
16' x 16' (4.9 m x 4.9 m) Maximum Coverage Area
16 GPM (60.6 LPM) Flow

Sprinkler, 4" (100 mm) Deflector-to-Ceiling



16' x 18' (4.9 m x 5.5 m) Maximum Coverage Area
19 GPM (71.9 LPM) Flow

Sprinkler, 4" (100 mm) Deflector-to-Ceiling

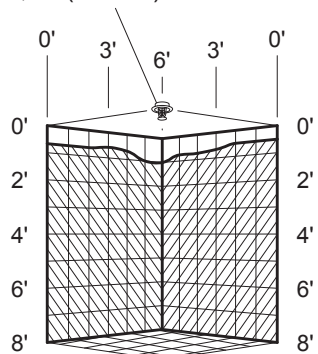


16' x 20' (4.9 m x 6.1 m) Maximum Coverage Area
23 GPM (87.1 LPM) Flow

WALL WETTING PATTERNS

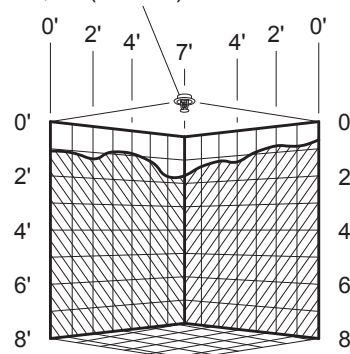
K=4.2 (K60), Residential
Horizontal Sidewall Sprinkler
SIN TY1334, Series LFII

Sprinkler, 2" (50 mm) Deflector-to-Ceiling



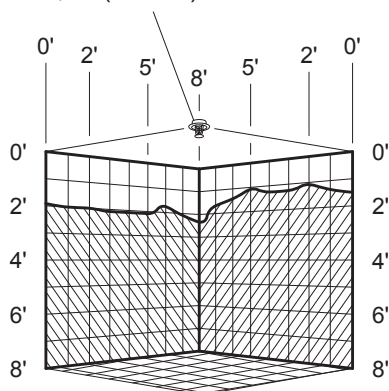
12' x 12' (3.7 m x 3.7 m) Maximum Coverage Area
13 GPM (49.2 LPM) Flow

Sprinkler, 2" (50 mm) Deflector-to-Ceiling



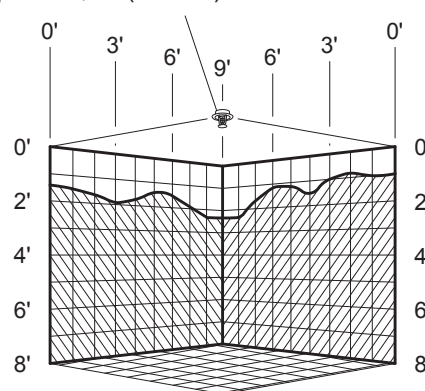
14' x 14' (4.3 m x 4.3 m) Maximum Coverage Area
13 GPM (49.2 LPM) Flow

Sprinkler, 2" (50 mm) Deflector-to-Ceiling



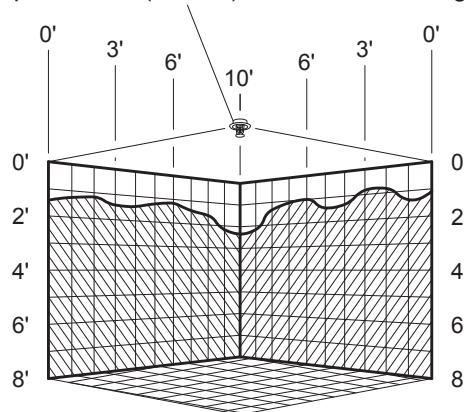
16' x 16' (4.9 m x 4.9 m) Maximum Coverage Area
13 GPM (49.2 LPM) Flow

Sprinkler, 2" (50 mm) Deflector-to-Ceiling



18' x 18' (5.5 m x 5.5 m) Maximum Coverage Area
17 GPM (64.3 LPM) Flow

Sprinkler, 2" (50 mm) Deflector-to-Ceiling

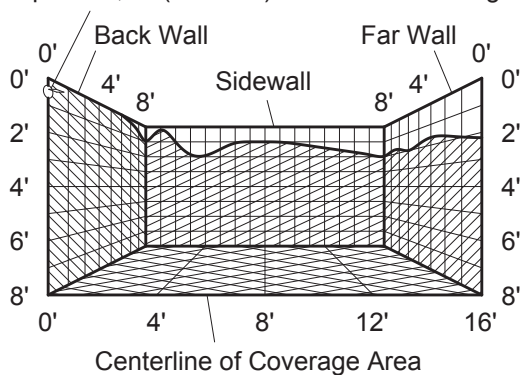


20' x 20' (6.1 m x 6.1 m) Maximum Coverage Area
20 GPM (75.7 LPM) Flow

WALL WETTING PATTERNS

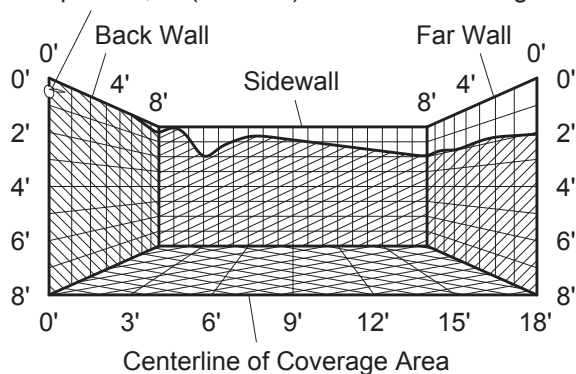
K=4.9 (K70), Residential
Pendent Sprinkler
SIN TY2234, Series LFII

Sprinkler, 4" (100 mm) Deflector-to-Ceiling



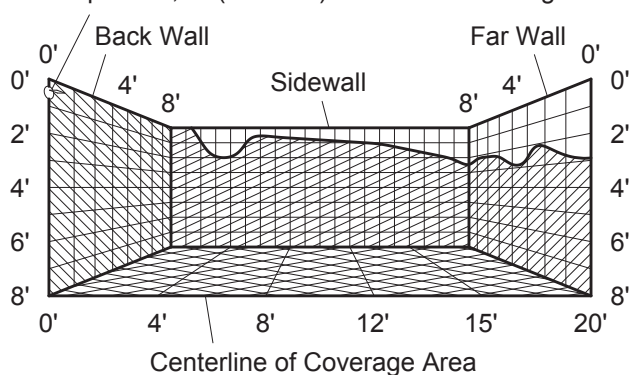
16' x 16' (4.9 m x 4.9 m) Maximum Coverage Area
26 GPM (98.4 LPM) Flow

Sprinkler, 4" (100 mm) Deflector-to-Ceiling



16' x 18' (4.9 m x 5.5 m) Maximum Coverage Area
29 GPM (109.8 LPM) Flow

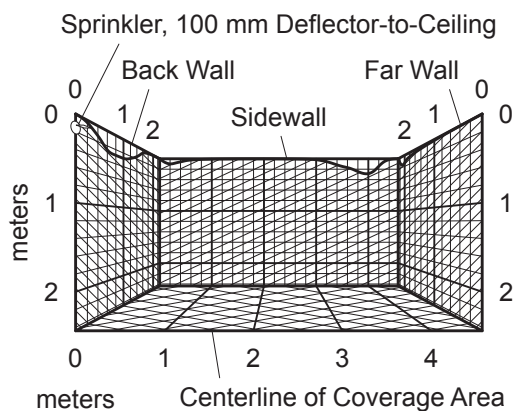
Sprinkler, 4" (100 mm) Deflector-to-Ceiling



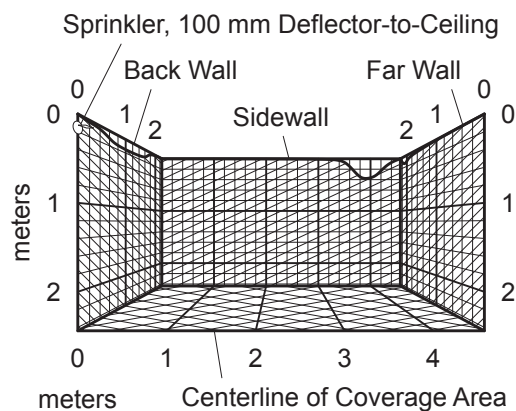
16' x 20' (4.9 m x 6.1 m) Maximum Coverage Area
33 GPM (124.9 LPM) Flow

WALL WETTING PATTERNS

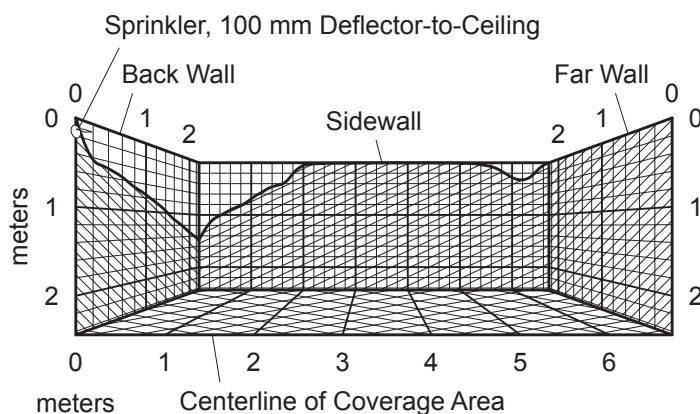
K=5.6 (K80), Extended Coverage
Horizontal Sidewall Sprinkler
SIN TY3322, Series TY-FRL



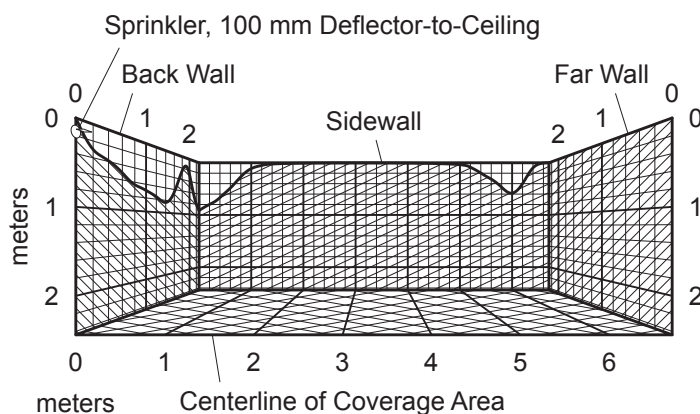
4.6 m x 4.6 m Maximum Coverage Area
127.6 LPM Flow



4.6 m x 4.6 m Maximum Coverage Area
139.7 LPM Flow



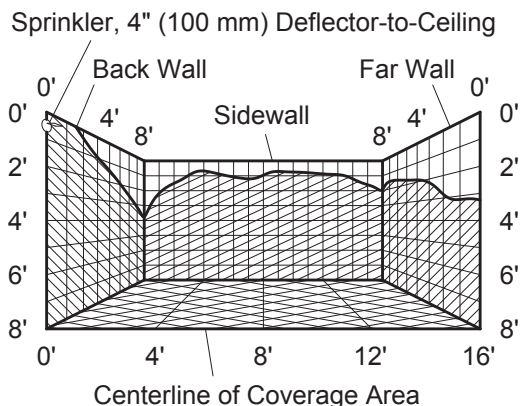
4.6 m x 6.7 m Maximum Coverage Area
127.6 LPM Flow



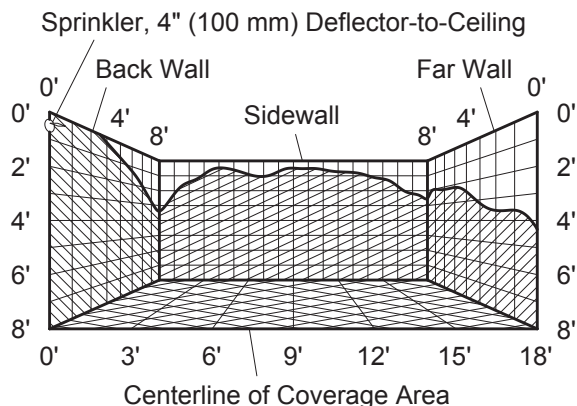
4.6 m x 6.7 m Maximum Coverage Area
139.7 LPM Flow

WALL WETTING PATTERNS

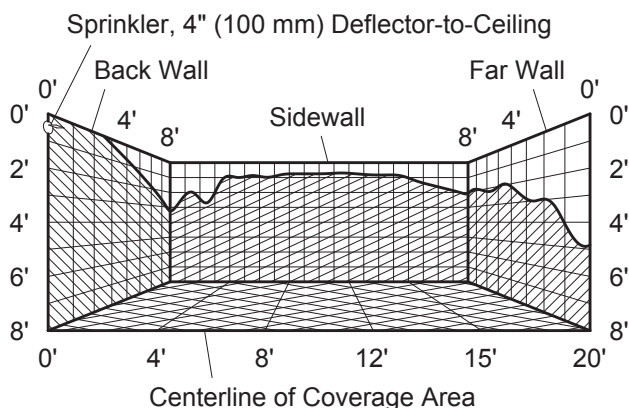
K=80, Extended Coverage
Horizontal Sidewall Sprinkler
SIN TY3330, Model EC-HS



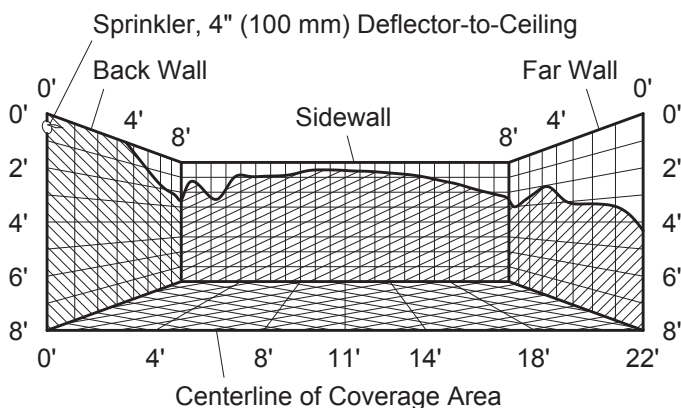
16' x 16' (4.9 m x 4.9 m) Maximum Coverage Area
26 GPM (98.4 LPM) Flow



16' x 18' (4.9 m x 5.5 m) Maximum Coverage Area
29 GPM (109.8 LPM) Flow



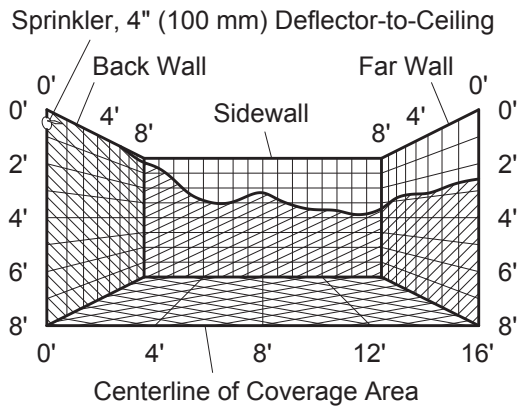
16' x 20' (4.9 m x 6.1 m) Maximum Coverage Area
32 GPM (121.1 LPM) Flow



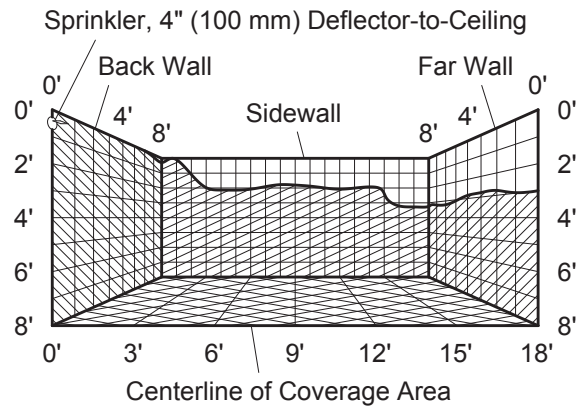
16' x 22' (4.9 m x 6.7 m) Maximum Coverage Area
35 GPM (132.5 LPM) Flow

WALL WETTING PATTERNS

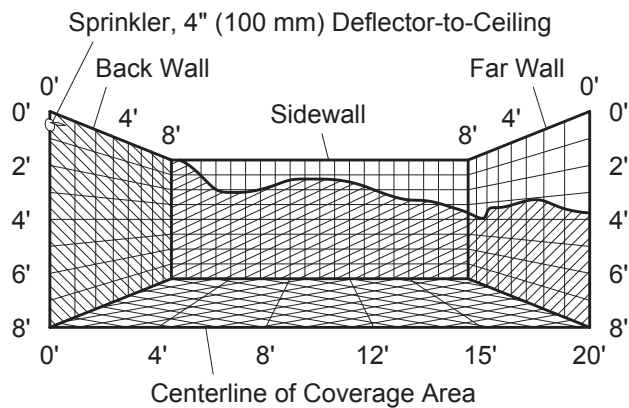
K=5.6 (K80), Extended Coverage
Horizontal Sidewall Sprinkler
SIN TY3332, Series TY-FRB



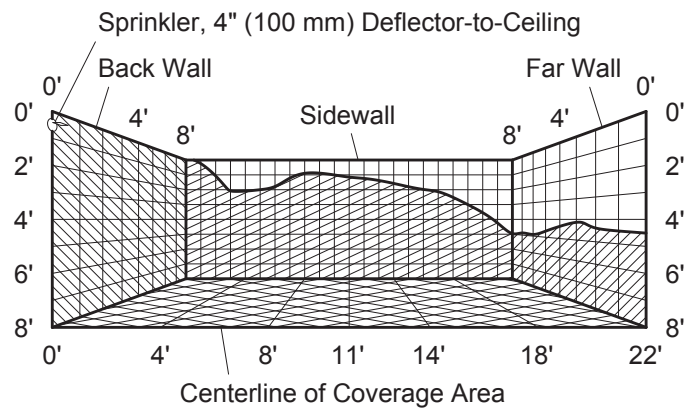
16' x 16' (4.9 m x 4.9 m) Maximum Coverage Area
27 GPM (102.2 LPM) Flow



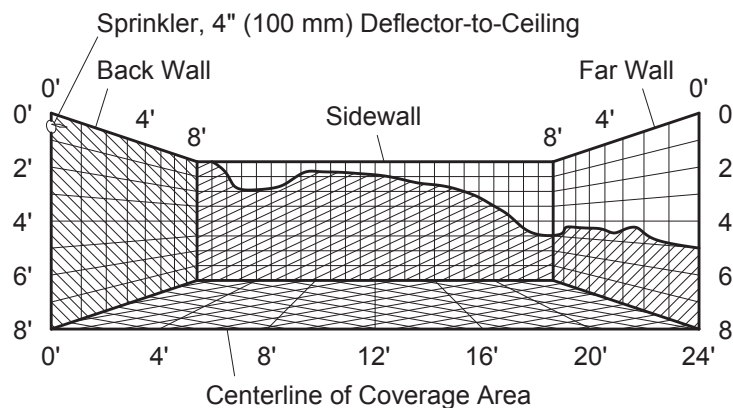
16' x 18' (4.9 m x 5.5 m) Maximum Coverage Area
30 GPM (113.6 LPM) Flow



16' x 20' (4.9 m x 6.1 m) Maximum Coverage Area
34 GPM (128.7 LPM) Flow



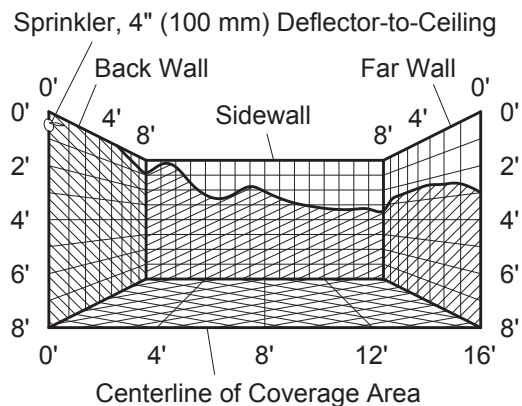
16' x 22' (4.9 m x 6.7 m) Maximum Coverage Area
37 GPM (140.0 LPM) Flow



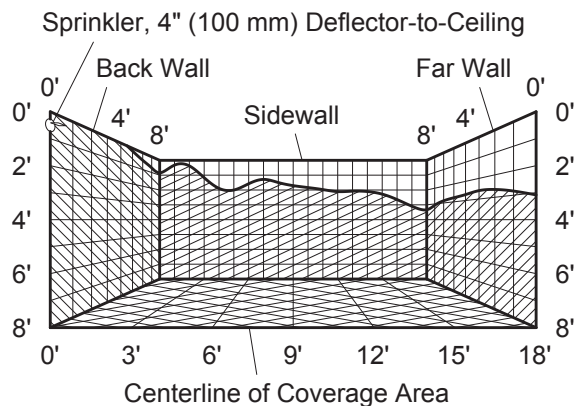
16' x 24' (4.9 m x 7.3 m) Maximum Coverage Area
44 GPM (166.5 LPM) Flow

WALL WETTING PATTERNS

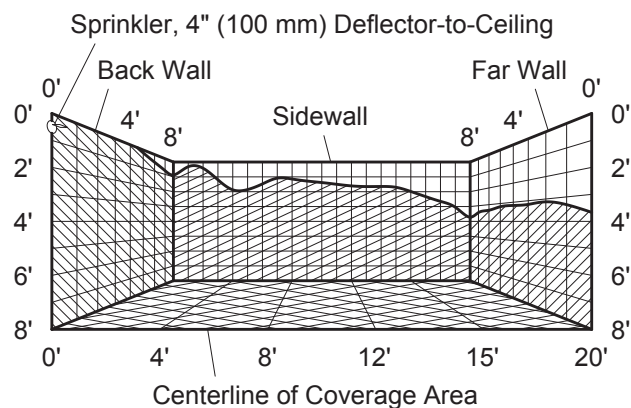
K=8.0 (K115), Extended Coverage
Horizontal Sidewall Sprinkler
SIN TY4322, Series TY-FRL



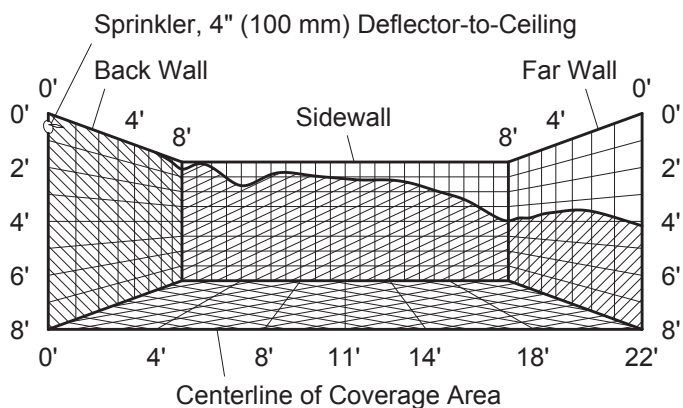
16' x 16' (4.9 m x 4.9 m) Maximum Coverage Area
26 GPM (98.4 LPM) Flow



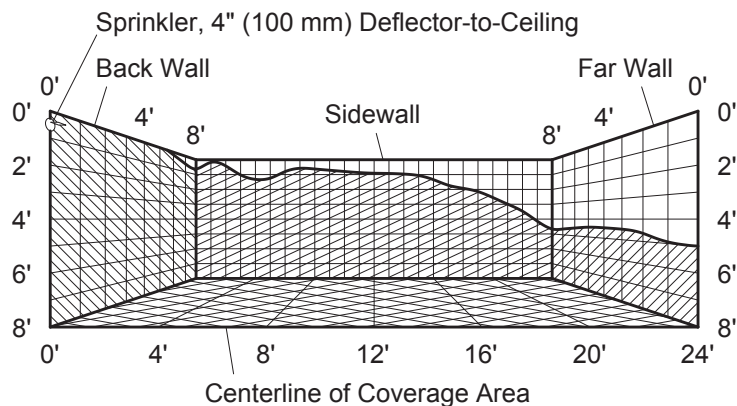
16' x 18' (4.9 m x 5.5 m) Maximum Coverage Area
29 GPM (109.8 LPM) Flow



16' x 20' (4.9 m x 6.1 m) Maximum Coverage Area
32 GPM (121.1 LPM) Flow



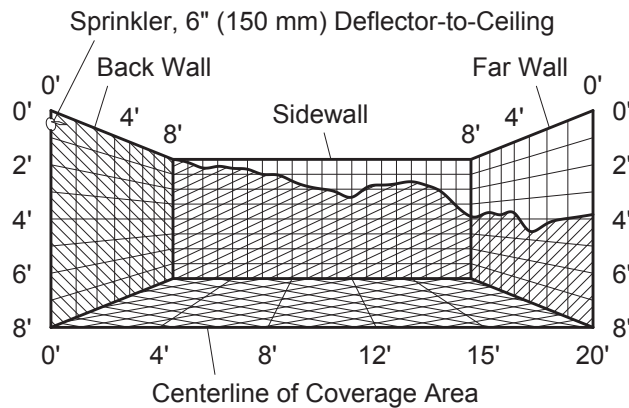
16' x 22' (4.9 m x 6.7 m) Maximum Coverage Area
35 GPM (132.5 LPM) Flow



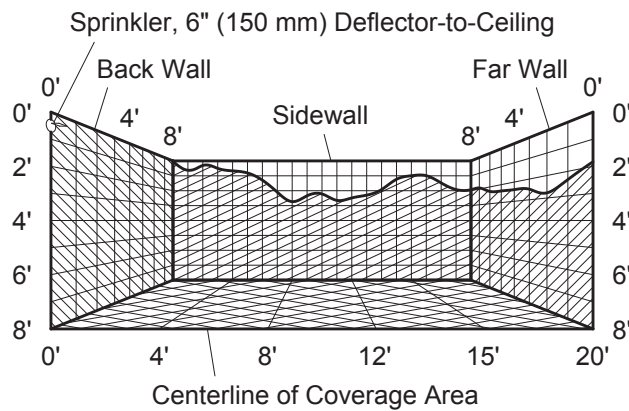
16' x 24' (4.9 m x 7.3 m) Maximum Coverage Area
39 GPM (147.6 LPM) Flow

WALL WETTING PATTERNS

K=8.0 (K115), Extended Coverage
Horizontal Sidewall Sprinkler
SIN TY4332, Series TY-FRB



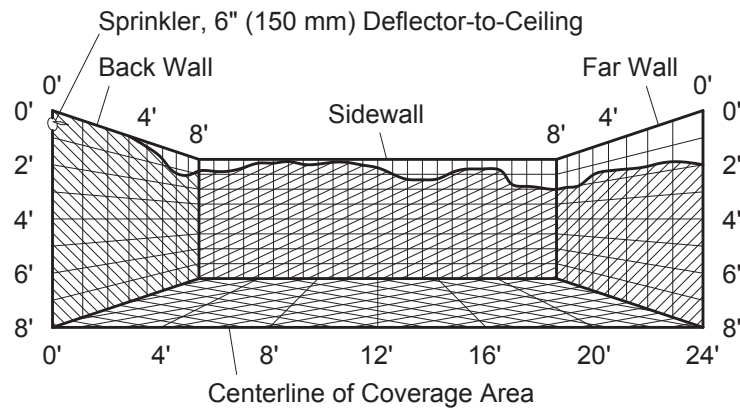
16' x 20' (4.9 m x 6.1 m) Maximum Coverage Area
48 GPM (181.7 LPM) Flow



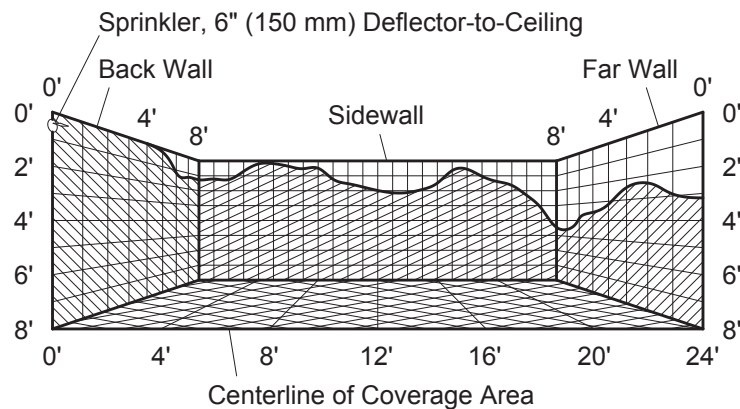
16' x 20' (4.9 m x 6.1 m) Maximum Coverage Area
64 GPM (242.2 LPM) Flow

WALL WETTING PATTERNS

K=11.2 (K160), Extended Coverage
Horizontal Sidewall Sprinkler
SIN TY5332, Model SW-20



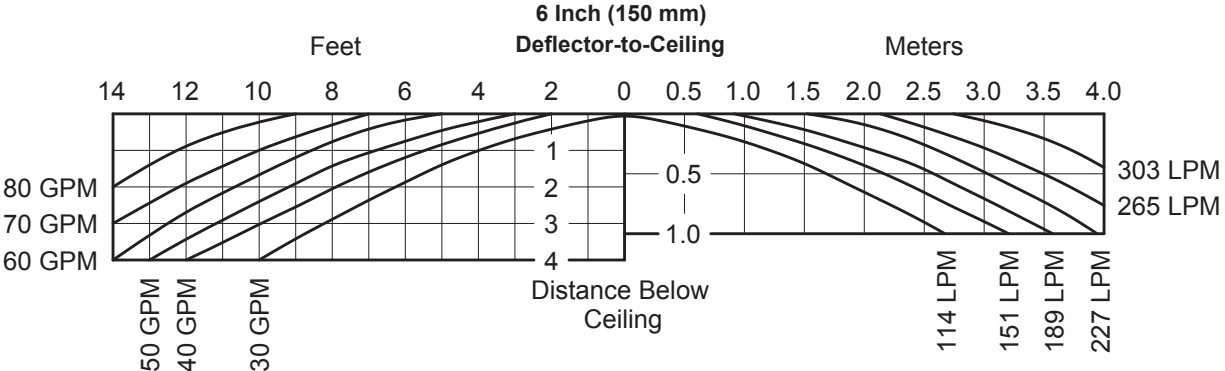
16' x 24' (4.9 m x 7.3 m) Maximum Coverage Area
58 GPM (219.5 LPM) Flow



16' x 24' (4.9 m x 7.3 m) Maximum Coverage Area
77 GPM (291.4 LPM) Flow

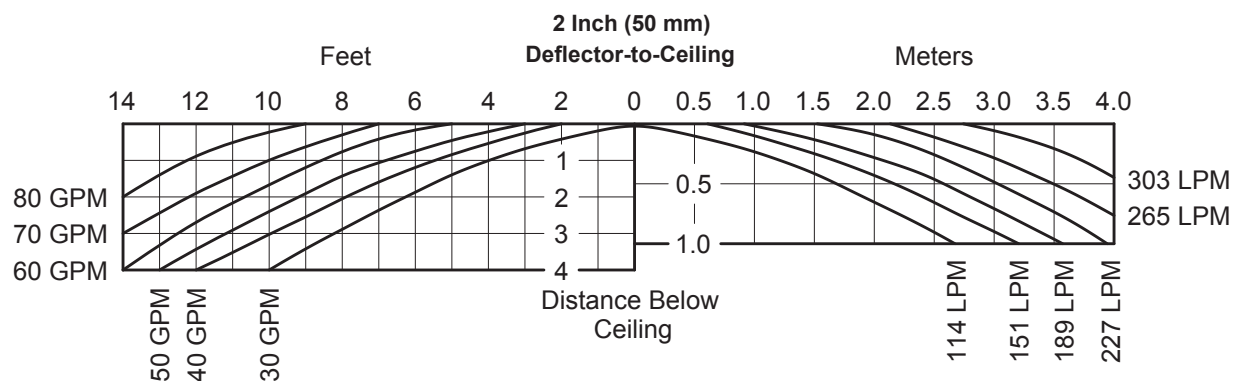
WALL WETTING PATTERNS

K=11.2 (K160), Extended Coverage
Horizontal Sidewall Sprinkler
SIN TY5337, Model SW-24



SPRAY PROFILE PATTERNS

Extended Coverage Upright
SIN TY5137, Series EC-11, K=11.2 (K160)
SIN TY6137, Series EC-14, K=14.0 (K200)



SPRAY PROFILE PATTERNS

Extended Coverage Pendent
SIN TY5237, Series EC-11, K=11.2 (K160)
SIN TY6237, Series EC-14, K=14.0 (K200)

Sprinkler		7 PSI / 14.8 GPM (0.5 BAR / 56.0 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.08	0.26	0.38	0.16	0.11	0.05	0.02	0.01	0	0	0
	2'	0.21	0.12	0.33	0.12	0.07	0.07	0.05	0.02	0.01	0	0
	4'	0.21	0.12	0.32	0.11	0.06	0.04	0.03	0.03	0.03	0.02	0.01
	8'	0.08	0.10	0.23	0.11	0.04	0.03	0.02	0.02	0.02	0.02	0.01
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 21.7 GPM (1 BAR / 82.1 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.14	0.14	0.40	0.29	0.19	0.10	0.05	0.02	0.01	0.01	0
	2'	0.15	0.09	0.26	0.23	0.15	0.09	0.06	0.05	0.03	0.01	0.01
	4'	0.22	0.13	0.23	0.25	0.12	0.07	0.05	0.04	0.03	0.03	0.02
	8'	0.11	0.10	0.11	0.26	0.09	0.06	0.04	0.03	0.02	0.03	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 30.7 GPM (2 BAR / 116.2 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.23	0.15	0.24	0.47	0.25	0.19	0.09	0.04	0.02	0.01	0
	2'	0.22	0.13	0.12	0.39	0.17	0.15	0.11	0.07	0.04	0.02	0.01
	4'	0.16	0.11	0.08	0.25	0.18	0.11	0.09	0.06	0.04	0.03	0.02
	8'	0.20	0.13	0.08	0.16	0.27	0.11	0.08	0.06	0.04	0.03	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Series TY-FRB Conventional "Old Style" Sprinkler, SIN TY363
 Series TY-B Conventional "Old Style" Sprinkler, SIN TY365
 Installed in Upright Position
 K=5.6 (K80)

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		7 PSI / 14.8 GPM (0.5 BAR / 56.0 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.89	0.62	0.25	0.13	0.08	0.04	0.02	0.01	0	0	0
	2'	0.13	0.26	0.18	0.12	0.10	0.07	0.03	0.02	0.01	0	0
	4'	0.04	0.08	0.11	0.09	0.08	0.07	0.06	0.04	0.02	0.01	0
	8'	0.04	0.04	0.06	0.06	0.06	0.05	0.04	0.04	0.03	0.02	0.01
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		15 PSI / 21.7 GPM (1 BAR / 82.1 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	1.31	0.85	0.31	0.17	0.10	0.06	0.04	0.02	0.01	0.01	0
	2'	0.32	0.41	0.24	0.16	0.12	0.08	0.05	0.03	0.02	0.01	0.01
	4'	0.11	0.15	0.16	0.13	0.11	0.09	0.07	0.06	0.03	0.02	0.01
	8'	0.08	0.09	0.11	0.10	0.09	0.07	0.06	0.05	0.07	0.03	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		30 PSI / 30.7 GPM (2 BAR / 116.2 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	1.95	1.26	0.45	0.24	0.14	0.08	0.05	0.03	0.01	0.01	0
	2'	0.44	0.54	0.33	0.19	0.17	0.12	0.07	0.04	0.02	0.01	0.01
	4'	0.18	0.24	0.23	0.18	0.14	0.12	0.09	0.07	0.04	0.03	0.01
	8'	0.15	0.15	0.16	0.16	0.13	0.11	0.09	0.07	0.05	0.04	0.03
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Series TY-FRB Conventional "Old Style" Sprinkler, SIN TY363
Series TY-B Conventional "Old Style" Sprinkler, SIN TY365
Installed in Pendent Position
K=5.6 (K80)

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		7 PSI / 14.8 GPM (0.5 BAR / 56.0 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.25	0.21	0.24	0.21	0.16	0.08	0.04	0.02	0.01	0	0
	2'	0.26	0.18	0.18	0.14	0.08	0.10	0.07	0.03	0.01	0.01	0
	4'	0.15	0.17	0.12	0.13	0.06	0.05	0.04	0.04	0.05	0.04	0.02
	8'	0.12	0.15	0.11	0.10	0.04	0.03	0.03	0.02	0.02	0.02	0.02
Collection Density, GPM/ft² (1 GPM/ft² = 40.74 mm/min)												

Sprinkler		15 PSI / 21.7 GPM (1 BAR / 82.1 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.22	0.22	0.22	0.25	0.21	0.13	0.05	0.03	0.01	0.01	0
	2'	0.20	0.18	0.15	0.20	0.12	0.10	0.09	0.06	0.03	0.01	0.01
	4'	0.16	0.17	0.10	0.16	0.09	0.06	0.05	0.04	0.04	0.04	0.03
	8'	0.17	0.18	0.09	0.14	0.08	0.05	0.04	0.03	0.03	0.02	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 30.7 GPM (2 BAR / 116.2 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.28	0.22	0.22	0.31	0.26	0.22	0.12	0.05	0.02	0.01	0.01
	2'	0.24	0.18	0.12	0.23	0.18	0.15	0.13	0.09	0.05	0.03	0.02
	4'	0.23	0.18	0.09	0.18	0.15	0.11	0.09	0.07	0.05	0.05	0.04
	8'	0.29	0.19	0.09	0.16	0.15	0.11	0.08	0.05	0.04	0.03	0.03
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

K=5.6 (K80), Conventional "Old Style" Sprinkler (Installed in Upright Position)
 SIN TY3631, Series TY-FRB
 SIN TY3641, Series TY-B (4 mm)
 SIN TY3651, Series TY-B

Sprinkler		7 PSI / 14.8 GPM (0.5 BAR / 56.0 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.20	0.33	0.24	0.10	0.07	0.06	0.04	0.03	0.03	0.01	0.01
	2'	0.09	0.11	0.20	0.12	0.07	0.05	0.04	0.04	0.03	0.02	0.01
	4'	0.04	0.04	0.11	0.09	0.07	0.05	0.04	0.04	0.03	0.02	0.02
	8'	0.03	0.03	0.07	0.07	0.05	0.05	0.04	0.03	0.03	0.02	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 21.7 GPM (1 BAR / 82.1 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.22	0.40	0.30	0.14	0.09	0.08	0.05	0.03	0.03	0.02	0.01
	2'	0.10	0.12	0.25	0.17	0.11	0.09	0.06	0.04	0.03	0.02	0.02
	4'	0.10	0.05	0.12	0.12	0.11	0.10	0.06	0.04	0.03	0.02	0.02
	8'	0.06	0.05	0.09	0.11	0.10	0.10	0.07	0.05	0.03	0.03	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 30.7 GPM (2 BAR / 116.2 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.26	0.54	0.40	0.21	0.15	0.15	0.09	0.06	0.04	0.02	0.02
	2'	0.15	0.15	0.30	0.23	0.17	0.16	0.09	0.06	0.04	0.03	0.02
	4'	0.18	0.10	0.14	0.20	0.19	0.18	0.12	0.07	0.04	0.03	0.02
	8'	0.13	0.11	0.12	0.16	0.15	0.16	0.12	0.07	0.04	0.03	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

K=5.6 (K80), Conventional "Old Style" Sprinkler (Installed in Pendent Position)
SIN TY3631, Series TY-FRB
SIN TY3641, Series TY-B (4 mm)
SIN TY3651, Series TY-B

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		7 PSI / 44.5 GPM (0.5 BAR / 168.5 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.19	0.49	0.32	0.19	0.09	0.07	0.01	0	0	0	0
	2'	0.16	0.21	0.15	0.14	0.11	0.09	0.04	0.01	0	0	0
	4'	0.11	0.17	0.04	0.06	0.08	0.08	0.07	0.05	0.03	0.01	0
	8'	0.14	0.15	0.02	0.02	0.03	0.05	0.05	0.05	0.04	0.03	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 65.0 GPM (1 BAR / 246.1 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.27	0.69	0.40	0.20	0.14	0.07	0.03	0.01	0	0	0
	2'	0.17	0.28	0.22	0.18	0.14	0.11	0.08	0.05	0.02	0.01	0
	4'	0.21	0.18	0.05	0.09	0.10	0.09	0.07	0.06	0.04	0.03	0.02
	8'	0.14	0.17	0.04	0.04	0.05	0.06	0.06	0.05	0.04	0.04	0.03
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 92.0 GPM (2 BAR / 348.3 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.41	0.91	0.57	0.30	0.19	0.10	0.04	0.02	0.01	0.01	0
	2'	0.32	0.32	0.25	0.23	0.17	0.13	0.10	0.07	0.04	0.02	0.01
	4'	0.20	0.22	0.08	0.12	0.14	0.12	0.10	0.08	0.06	0.04	0.03
	8'	0.20	0.23	0.05	0.07	0.07	0.08	0.08	0.07	0.06	0.05	0.03
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Series TY-FRB Upright Sprinkler, SIN TY313
Series TY-B Upright Sprinkler, SIN TY315
K=5.6 (K80)

Sprinkler		7 PSI / 44.5 GPM (0.5 BAR / 168.5 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.28	0.94	0.53	0.04	0	0	0	0	0	0	0
	2'	0.04	0.15	0.35	0.32	0.09	0.01	0	0	0	0	0
	4'	0.02	0.04	0.08	0.14	0.17	0.12	0.04	0.01	0	0	0
	8'	0.04	0.03	0.04	0.05	0.06	0.07	0.08	0.07	0.03	0.01	0
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 65.0 GPM (1 BAR / 246.1 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.58	1.20	0.82	0.10	0.02	0	0	0	0	0	0
	2'	0.13	0.26	0.47	0.38	0.16	0.03	0.01	0	0	0	0
	4'	0.04	0.06	0.13	0.19	0.19	0.16	0.08	0.03	0.01	0	0
	8'	0.05	0.05	0.07	0.08	0.09	0.10	0.09	0.08	0.05	0.03	0.01
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 92.0 GPM (2 BAR / 348.3 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.72	2.27	1.31	0.16	0.04	0.01	0	0	0	0	0
	2'	0.11	0.38	0.65	0.45	0.20	0.04	0.01	0	0	0	0
	4'	0.06	0.08	0.20	0.29	0.26	0.19	0.11	0.04	0.01	0	0
	8'	0.07	0.07	0.11	0.14	0.15	0.14	0.12	0.10	0.06	0.04	0.01
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Series TY-FRB Pendent Sprinkler, SIN TY323
Series TY-B Pendent Sprinkler, SIN TY325
K=5.6 (K80)

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		7 PSI / 29.7 GPM (0.5 BAR / 112.4 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.35	0.76	0.49	0.27	0.20	0.20	0.09	0	0	0	0
	2'	0.30	0.29	0.24	0.21	0.16	0.13	0.12	0.12	0.06	0.04	0
	4'	0.17	0.21	0.06	0.09	0.09	0.09	0.09	0.08	0.08	0.07	0.06
	8'	0.16	0.21	0.07	0.03	0.04	0.05	0.05	0.05	0.05	0.05	0.05
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 43.3 GPM (1 BAR / 163.9 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.44	1.13	0.67	0.35	0.22	0.18	0.14	0.09	0.02	0	0
	2'	0.33	0.35	0.33	0.28	0.22	0.16	0.13	0.10	0.10	0.07	0.04
	4'	0.29	0.25	0.09	0.13	0.13	0.12	0.12	0.12	0.08	0.07	0.06
	8'	0.28	0.26	0.08	0.05	0.06	0.07	0.07	0.06	0.06	0.06	0.05
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 61.4 GPM (2 BAR / 232.4 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.52	1.32	0.82	0.41	0.27	0.20	0.16	0.10	0.04	0.01	0
	2'	0.44	0.41	0.42	0.38	0.30	0.22	0.16	0.14	0.12	0.09	0.06
	4'	0.39	0.29	0.11	0.16	0.16	0.15	0.16	0.14	0.12	0.10	0.08
	8'	0.40	0.28	0.11	0.08	0.09	0.10	0.09	0.09	0.09	0.09	0.08
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Series EC-11 Upright Sprinkler, SIN TY5137
K=11.2 (K160)

Sprinkler		7 PSI / 29.7 GPM (0.5 BAR / 112.4 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.54	0.42	0.23	0.15	0.27	0.30	0.11	0.03	0	0	0
	2'	0.32	0.10	0.14	0.12	0.07	0.09	0.15	0.19	0.11	0.02	0
	4'	0.11	0.08	0.06	0.06	0.06	0.05	0.05	0.06	0.08	0.10	0.10
	8'	0.07	0.07	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.04
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 43.3 GPM (1 BAR / 163.9 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.84	0.64	0.30	0.21	0.16	0.21	0.23	0.16	0.06	0.02	0
	2'	0.44	0.20	0.20	0.19	0.11	0.08	0.08	0.10	0.13	0.14	0.09
	4'	0.18	0.11	0.07	0.12	0.10	0.07	0.06	0.06	0.06	0.06	0.07
	8'	0.10	0.08	0.06	0.07	0.07	0.05	0.04	0.04	0.04	0.04	0.05
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 61.4 GPM (2 BAR / 232.4 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	1.34	0.93	0.43	0.26	0.24	0.20	0.22	0.20	0.17	0.10	0.04
	2'	0.62	0.33	0.26	0.24	0.18	0.14	0.12	0.11	0.12	0.12	0.13
	4'	0.39	0.17	0.10	0.11	0.15	0.13	0.10	0.09	0.08	0.07	0.08
	8'	0.29	0.14	0.11	0.09	0.12	0.11	0.08	0.06	0.06	0.05	0.06
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Series EC-11 Pendent Sprinkler, SIN TY5237
K=11.2 (K160)

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		7 PSI / 37.1 GPM (0.5 BAR / 140.4 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.28	0.81	0.56	0.35	0.24	0.23	0.15	0.04	0	0	0
	2'	0.22	0.28	0.24	0.22	0.18	0.18	0.14	0.14	0.11	0.02	0
	4'	0.21	0.22	0.09	0.09	0.10	0.10	0.10	0.09	0.09	0.08	0.07
	8'	0.21	0.21	0.10	0.05	0.04	0.05	0.05	0.06	0.06	0.06	0.06
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 54.2 GPM (1 BAR / 205.2 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.44	1.16	0.71	0.44	0.27	0.21	0.17	0.13	0.09	0.03	0.01
	2'	0.31	0.35	0.33	0.28	0.25	0.19	0.15	0.13	0.12	0.10	0.07
	4'	0.30	0.27	0.12	0.12	0.14	0.12	0.12	0.12	0.10	0.09	0.08
	8'	0.29	0.26	0.12	0.06	0.07	0.07	0.07	0.07	0.06	0.07	0.06
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 76.7 GPM (2 BAR / 290.3 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.58	1.57	0.97	0.58	0.34	0.27	0.22	0.16	0.11	0.07	0.02
	2'	0.42	0.41	0.39	0.37	0.34	0.27	0.21	0.17	0.15	0.13	0.09
	4'	0.54	0.35	0.14	0.15	0.18	0.16	0.15	0.15	0.14	0.12	0.11
	8'	0.57	0.32	0.16	0.10	0.10	0.10	0.09	0.10	0.09	0.09	0.09
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Series EC-14 Upright Sprinkler, SIN TY6137
K=14.0 (K200)

Sprinkler		7 PSI / 37.1 GPM (0.5 BAR / 140.4 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.48	0.25	0.22	0.16	0.38	0.40	0.16	0.04	0.02	0	0
	2'	0.33	0.08	0.10	0.12	0.07	0.10	0.20	0.29	0.14	0.03	0
	4'	0.20	0.07	0.04	0.07	0.06	0.05	0.04	0.05	0.08	0.14	0.16
	8'	0.14	0.05	0.03	0.08	0.03	0.02	0.03	0.03	0.03	0.04	0.04
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 54.2 GPM (1 BAR / 205.2 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.69	0.41	0.25	0.20	0.23	0.31	0.33	0.23	0.11	0.04	0.01
	2'	0.38	0.12	0.12	0.16	0.11	0.09	0.10	0.14	0.19	0.21	0.13
	4'	0.28	0.10	0.06	0.08	0.11	0.08	0.06	0.05	0.05	0.07	0.08
	8'	0.15	0.08	0.05	0.06	0.07	0.06	0.04	0.04	0.04	0.03	0.03
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 76.7 GPM (2 BAR / 290.3 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	0.91	0.57	0.27	0.20	0.25	0.30	0.30	0.29	0.25	0.16	0.07
	2'	0.51	0.19	0.15	0.18	0.14	0.14	0.12	0.14	0.17	0.18	0.18
	4'	0.26	0.16	0.08	0.10	0.12	0.13	0.10	0.08	0.07	0.08	0.09
	8'	0.14	0.08	0.07	0.07	0.08	0.09	0.08	0.07	0.06	0.05	0.05
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Series EC-14 Pendent Sprinkler, SIN TY6237
K=14.0 (K200)

Sprinkler		7 PSI / 44.5 GPM (0.5 BAR / 168.5 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	1.68	4.75	1.32	0.15	0.02	0	0	0	0	0	0
	2'	0.34	1.88	1.33	0.74	0.19	0.01	0	0	0	0	0
	4'	0.25	0.31	0.46	0.58	0.46	0.31	0.13	0.03	0.01	0	0
	8'	0.26	0.36	0.13	0.18	0.32	0.25	0.19	0.15	0.11	0.04	0.01
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 65.0 GPM (1 BAR / 246.1 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	3.03	5.89	1.96	0.26	0.04	0.01	0	0	0	0	0
	2'	0.45	2.53	1.88	1.03	0.36	0.05	0	0	0	0	0
	4'	0.45	0.48	0.84	0.76	0.58	0.41	0.22	0.05	0	0	0
	8'	0.55	0.47	0.14	0.25	0.44	0.41	0.30	0.24	0.17	0.08	0.03
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 92.0 GPM (2 BAR / 348.3 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	5.02	8.54	2.97	0.42	0.05	0.02	0	0	0	0	0
	2'	0.57	5.03	2.53	1.64	0.42	0.05	0.01	0	0	0	0
	4'	0.72	0.55	1.09	1.20	0.94	0.66	0.25	0.04	0.01	0	0
	8'	0.93	0.50	0.11	0.28	0.56	0.62	0.45	0.30	0.18	0.08	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Model K17-231 Upright Sprinkler, SIN TY7151
 Ultra K17 Upright Sprinkler 286°F, SIN TY7103
 Ultra K17 Upright Sprinkler 155°F and 200°F, SIN TY7153
 K=16.8 (K240)

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		7 PSI / 44.5 GPM (0.5 BAR / 168.5 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	10.05	3.52	0.95	0.27	0.04	0.01	0	0	0	0	0
	2'	2.73	3.08	0.73	0.57	0.22	0.05	0.01	0	0	0	0
	4'	0.68	1.45	0.81	0.32	0.28	0.24	0.11	0.03	0	0	0
	8'	0.25	0.34	0.60	0.38	0.20	0.14	0.12	0.12	0.08	0.04	0.01
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		15 PSI / 65.0 GPM (1 BAR / 246.1 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	15.53	4.56	1.44	0.46	0.09	0.03	0.01	0	0	0	0
	2'	5.03	4.27	0.98	0.76	0.36	0.12	0.03	0.01	0	0	0
	4'	1.49	2.09	1.20	0.47	0.33	0.33	0.19	0.08	0.02	0	0
	8'	0.61	0.68	0.81	0.56	0.31	0.20	0.15	0.14	0.13	0.09	0.04
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		30 PSI / 92.0 GPM (2 BAR / 348.3 LPM)											
		Radius from Sprinkler, Feet											
Distance Below Ceiling, Feet		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	
		1'	24.68	7.59	2.24	0.56	0.11	0.04	0.02	0.01	0	0	0
		2'	9.27	6.33	1.48	1.19	0.42	0.10	0.03	0.01	0	0	0
		4'	5.34	3.35	2.01	0.71	0.54	0.48	0.19	0.05	0.01	0	0
		8'	1.34	1.34	1.08	0.78	0.47	0.33	0.25	0.19	0.15	0.07	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)													

AVERAGE APPLIED DENSITIES

Model K17-231 Pendent Sprinkler, SIN TY7251
K=16.8 (K240)

		7 PSI / 37.1 GPM (0.5 BAR / 140.4 LPM)										
Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	7.59	1.76	0.62	0.50	0.16	0.02	0	0	0	0	0
	2'	5.70	1.63	0.40	0.26	0.28	0.18	0.03	0	0	0	0
	4'	3.11	1.14	0.42	0.21	0.13	0.11	0.13	0.12	0.06	0.01	0
	8'	4.88	0.59	0.28	0.19	0.13	0.09	0.07	0.07	0.06	0.07	0.06
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		15 PSI / 54.2 GPM (1 BAR / 205.2 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	11.39	2.53	0.60	0.59	0.37	0.08	0.01	0	0	0	0
	2'	8.14	2.44	0.64	0.29	0.30	0.35	0.15	0.02	0	0	0
	4'	5.03	1.27	0.54	0.27	0.17	0.13	0.13	0.14	0.14	0.07	0.01
	8'	2.36	0.86	0.37	0.24	0.18	0.13	0.10	0.08	0.07	0.07	0.06
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		30 PSI / 76.7 GPM (2 BAR / 290.3 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	15.53	4.27	0.89	0.87	0.51	0.11	0.03	0	0	0	0
	2'	11.39	2.85	0.77	0.40	0.44	0.45	0.16	0.03	0	0	0
	4'	7.60	1.63	0.69	0.40	0.26	0.22	0.20	0.20	0.16	0.06	0.01
	8'	3.80	1.33	0.53	0.35	0.27	0.21	0.17	0.14	0.12	0.10	0.10
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Model ESFR-1 Pendent Sprinkler, SIN TY6226
K=14.0 (K200)

Sprinkler		7 PSI / 37 GPM (0.5 BAR / 140 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	9.88	1.73	0.60	0.37	0.10	0.02	0	0	0	0	0
	2'	2.69	2.40	0.51	0.28	0.32	0.18	0.05	0	0	0	0
	4'	0.84	1.16	0.44	0.22	0.15	0.15	0.15	0.11	0.04	0	0
	8'	0.36	0.36	0.48	0.24	0.14	0.10	0.08	0.08	0.08	0.06	0.06
Collection Density, GPM/ft² (1 GPM/ft² = 40.74 mm/min)												

Sprinkler		15 PSI / 54 GPM (1 BAR / 204 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	14.61	2.97	1.09	0.69	0.23	0.06	0.03	0	0	0	0
	2'	6.00	2.74	0.63	0.29	0.34	0.23	0.11	0.03	0	0	0
	4'	2.70	1.95	0.65	0.35	0.20	0.20	0.15	0.15	0.10	0	0
	8'	1.09	0.76	0.71	0.33	0.22	0.16	0.11	0.09	0.09	0.04	0.04
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 77 GPM (2 BAR / 291 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	22.40	3.53	1.40	1.00	0.13	0.03	0	0	0	0	0
	2'	11.20	4.20	1.03	0.60	0.69	0.43	0.09	0.04	0	0	0
	4'	4.80	2.20	0.70	0.40	0.30	0.30	0.30	0.20	0.10	0	0
	8'	2.27	1.11	0.67	0.31	0.22	0.18	0.13	0.13	0.09	0.09	0.09
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Model ESFR-14 Pendent Sprinkler, SIN TY6236
K=14.0 (K200)

		7 PSI / 44.5 GPM (0.5 BAR / 168.5 LPM)										
Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	9.76	2.60	1.26	0.34	0.02	0	0	0	0	0	0
	2'	4.88	2.21	0.84	0.54	0.31	0.03	0	0	0	0	0
	4'	2.28	3.60	1.27	0.78	0.53	0.36	0.26	0.12	0.03	0	0
	8'	1.30	0.81	0.76	0.24	0.19	0.15	0.13	0.11	0.10	0.07	0.02
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		15 PSI / 65.0 GPM (1 BAR / 246.1 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	9.50	4.27	1.42	0.58	0.06	0.01	0	0	0	0	0
	2'	6.97	3.25	1.23	0.62	0.45	0.11	0.02	0	0	0	0
	4'	2.33	2.53	0.80	0.50	0.35	0.24	0.20	0.11	0.02	0	0
	8'	1.90	0.95	1.06	0.40	0.30	0.23	0.17	0.13	0.11	0.09	0.06
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

		30 PSI / 92.0 GPM (2 BAR / 348.3 LPM)										
Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	21.35	7.77	2.60	0.97	0.11	0.01	0	0	0	0	0
	2'	11.96	5.26	1.80	0.89	0.61	0.14	0.02	0	0	0	0
	4'	2.53	3.35	1.17	0.79	0.52	0.36	0.27	0.12	0.02	0	0
	8'	1.90	1.07	1.26	0.53	0.42	0.33	0.24	0.17	0.12	0.09	0.05
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Model ESFR-17 Upright Sprinkler, SIN TY7126
K=16.8 (K240)

		Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)										
		7 PSI / 44.5 GPM (0.5 BAR / 168.5 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	12.92	1.77	0.93	0.40	0.07	0.02	0	0	0	0	0
	2'	6.86	2.35	0.46	0.42	0.32	0.14	0.02	0	0	0	0
	4'	1.16	1.85	0.44	0.18	0.15	0.22	0.18	0.11	0.04	0	0
	8'	0.34	0.82	0.48	0.20	0.12	0.10	0.08	0.08	0.10	0.08	0.04
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

		Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)										
		15 PSI / 65.0 GPM (1 BAR / 246.1 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	22.40	2.86	1.26	0.74	0.17	0.03	0	0	0	0	0
	2'	10.84	3.20	0.69	0.57	0.46	0.29	0.06	0	0	0	0
	4'	2.75	2.65	0.65	0.35	0.20	0.20	0.20	0.15	0.10	0.03	0
	8'	0.89	1.09	0.76	0.36	0.20	0.16	0.09	0.09	0.09	0.11	0.07
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

		Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)										
		30 PSI / 92.0 GPM (2 BAR / 348.3 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	33.60	3.53	1.87	0.93	0.13	0.03	0	0	0	0	0
	2'	14.61	4.80	1.29	0.86	0.60	0.26	0.09	0	0	0	0
	4'	5.50	4.10	1.00	0.50	0.40	0.40	0.30	0.20	0.10	0	0
	8'	2.36	1.96	0.80	0.44	0.27	0.18	0.13	0.13	0.13	0.13	0.04
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Model ESFR-17 Pendent Sprinkler, SIN TY7223
K=16.8 (K240)

		7 PSI / 44.5 GPM (0.5 BAR / 168.5 LPM)										
Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	11.39	2.21	0.65	0.49	0.19	0.02	0	0	0	0	0
	2'	7.60	1.85	0.51	0.29	0.25	0.22	0.06	0.01	0	0	0
	4'	4.75	1.27	0.52	0.25	0.16	0.13	0.13	0.12	0.06	0.02	0
	8'	3.25	0.73	0.40	0.25	0.17	0.11	0.11	0.07	0.08	0.07	0.06
		Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)										

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		15 PSI / 65.0 GPM (1 BAR / 246.1 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	17.09	3.60	0.77	0.62	0.37	0.09	0.01	0	0	0	0
	2'	11.39	2.67	0.71	0.34	0.30	0.31	0.19	0.04	0.01	0	0
	4'	7.60	1.75	0.72	0.36	0.21	0.16	0.16	0.15	0.13	0.06	0.02
	8'	4.56	1.13	0.49	0.33	0.24	0.17	0.12	0.10	0.09	0.07	0.07
		Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)										

Sprinkler Deflector-to-Ceiling: 7 Inches (178 mm)		30 PSI / 92.0 GPM (2 BAR / 348.3 LPM)										
		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	34.17	5.26	1.15	0.91	0.56	0.12	0.02	0	0	0	0
	2'	17.09	3.71	1.05	0.51	0.50	0.47	0.23	0.05	0.01	0	0
	4'	11.39	2.44	1.01	0.53	0.34	0.27	0.26	0.22	0.14	0.05	0.01
	8'	4.02	1.71	0.74	0.53	0.38	0.28	0.22	0.17	0.14	0.12	0.09
		Collection Density, GPM/ft² (1 GPM/ft² = 40.74 mm/min)										

AVERAGE APPLIED DENSITIES

Model ESFR-17 Pendent Sprinkler, SIN TY7226
K=16.8 (K240)

Sprinkler		7 PSI / 58.2 GPM (0.5 BAR / 220.3 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	29.35	7.66	0.32	0.13	0.04	0.01	0.01	0	0	0	0
	2'	11.35	0.74	0.74	0.17	0.09	0.03	0.01	0.01	0	0	0
	4'	3.15	2.88	1.79	0.36	0.13	0.07	0.04	0.02	0.01	0	0
	8'	0.91	1.17	0.91	0.92	0.42	0.14	0.07	0.04	0.022	0.01	0.01
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 85.2 GPM (1 BAR / 322.5 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	30.25	12.95	0.51	0.19	0.07	0.02	0	0	0	0	0
	2'	15.7	9.39	1.50	0.34	0.16	0.07	0.03	0.01	0	0	0
	4'	5.16	3.96	2.89	0.65	0.18	0.10	0.06	0.03	0.01	0.01	0
	8'	1.57	0.95	1.23	1.30	0.67	0.22	0.10	0.05	0.03	0.02	0.01
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 120.5 GPM (2 BAR / 456.1 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	27.84	15.00	0.80	0.28	0.09	0.02	0.01	0.01	0	0	0
	2'	21.12	13.98	1.65	0.39	0.19	0.09	0.03	0.01	0	0	0
	4'	9.10	5.65	4.07	5.17	0.33	0.15	0.08	0.04	0.01	0	0
	8'	2.93	2.84	1.84	1.76	0.86	0.28	0.12	0.06	0.04	0.02	0.01
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Model ESFR-22 Pendent Sprinkler, SIN TY8223
K=22.4 (K320)

Sprinkler		7 PSI / 66.3 GPM (0.5 BAR / 251.0 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	24.41	5.70	0.77	0.39	0.11	0.01	0	0	0	0	0
	2'	12.01	4.95	1.02	0.47	0.27	0.14	0.04	0	0	0	0
	4'	5.70	2.85	1.42	0.55	0.29	0.18	0.13	0.07	0.02	0	0
	8'	2.07	1.63	0.82	0.65	0.38	0.22	0.15	0.11	0.08	0.05	0.03
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 96.8 GPM (1 BAR / 366.4 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	42.60	6.57	1.14	0.76	0.21	0.06	0.01	0	0	0	0
	2'	18.98	6.83	1.35	0.61	0.36	0.22	0.08	0.02	0.01	0	0
	4'	8.54	3.80	1.75	0.70	0.37	0.25	0.17	0.11	0.05	0.01	0
	8'	2.85	2.28	1.90	0.81	0.54	0.30	0.20	0.14	0.11	0.07	0.05
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 137.0 GPM (2 BAR / 518.6 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	68.37	11.39	1.88	0.77	0.23	0.06	0.02	0	0	0	0
	2'	22.78	11.39	1.95	0.93	0.53	0.25	0.08	0.03	0	0	0
	4'	11.39	5.70	2.53	1.11	0.59	0.37	0.24	0.12	0.05	0.01	0
	8'	5.26	3.80	1.75	1.24	0.79	0.44	0.27	0.18	0.12	0.07	0.04
Collection Density, GPM/ft² (1 GPM/ft² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Model ESFR-25 Pendent Sprinkler, SIN TY9226
K=25.2 (K360)

Sprinkler		7 PSI / 66.3 GPM (0.5 BAR / 251.0 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	7.59	3.80	2.05	0.91	0.16	0.02	0.01	0	0	0	0
	2'	2.14	2.85	1.28	0.92	0.68	0.23	0.05	0.01	0	0	0
	4'	1.09	0.97	0.72	0.39	0.38	0.36	0.33	0.16	0.04	0	0
	8'	1.14	0.31	0.49	0.31	0.21	0.20	0.18	0.18	0.17	0.15	0.09
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		15 PSI / 96.8 GPM (1 BAR / 366.4 LPM)										
Deflector-to-Ceiling:		Radius from Sprinkler, Feet										
7 Inches (178 mm)		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	11.02	4.88	2.64	1.22	0.23	0.05	0.01	0	0	0	0
	2'	2.85	3.80	1.64	1.13	0.82	0.35	0.09	0.02	0	0	0
	4'	1.75	1.42	1.08	0.62	0.56	0.49	0.41	0.30	0.11	0.03	0.01
	8'	1.63	0.39	0.57	0.45	0.32	0.29	0.27	0.23	0.21	0.18	0.14
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

Sprinkler		30 PSI / 137.0 GPM (2 BAR / 518.6 LPM)										
Deflector-to-Ceiling: 7 Inches (178 mm)		Radius from Sprinkler, Feet										
		0	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'
Distance Below Ceiling, Feet	1'	17.08	7.77	3.55	1.69	0.31	0.06	0.01	0	0	0	0
	2'	4.21	0.13	5.11	2.65	1.76	1.25	0.42	0.10	0.02	0	0
	4'	1.63	1.50	1.44	1.02	0.85	0.73	0.58	0.32	0.12	0.02	0
	8'	1.20	1.20	0.46	0.51	0.49	0.43	0.37	0.36	0.32	0.26	0.19
Collection Density, GPM/ft ² (1 GPM/ft ² = 40.74 mm/min)												

AVERAGE APPLIED DENSITIES

Model EC-25 Upright Sprinkler, SIN TY9128
K=25.2 (K360)