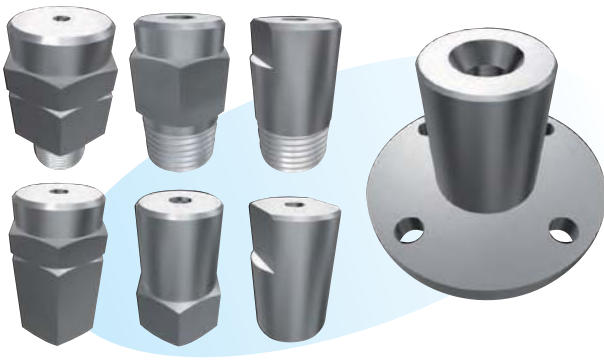


Full-cone Nozzles



► Features

- Full-circle spray pattern.
- Relatively small droplets size.
- Various flow rates and spray angles available.
- Easy-to-maintain three-piece type.

► Applications

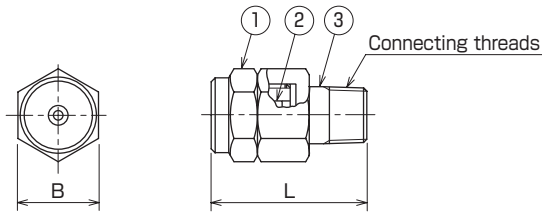
- Washing of gases, incineration smoke, machines, eliminators, screens, parts, ballast, soil, etc.
- Cooling of gases, machines, tanks, steel sheets, etc.
- Waste water treatment, defoaming, fire prevention, dust collection, dust deposition, dust prevention, spraying of chemicals, seawater desalination, and deaerators in plants.

► Materials

- Stainless steel (standard material: SUS303), brass, or nickel alloy
- Plastics (PTFE, PVC, or PP)
- Ceramics

Shapes and dimensions

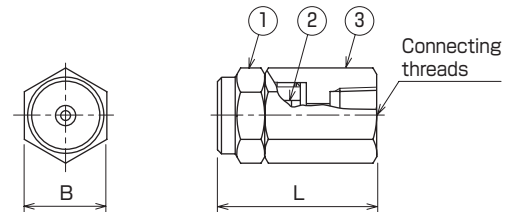
● KSF type



Model	Dimension (mm)		Connecting threads	Weight (g)
	B	L		
1/8 KSF	14	27	R 1/8	25
1/4 KSF	19	35	R 1/4	50
3/8 KSF	23	42	R 3/8	80
1/2 KSF	29	56	R 1/2	190
3/4 KSF	32	64	R 3/4	250
1 KSF	41	74	R 1	540

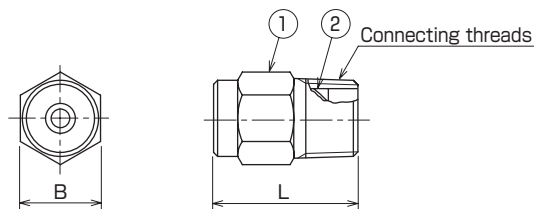
No.	Part name
①	Nozzle body
②	Core
③	Adapter

● KSFG type



Model	Dimension (mm)		Connecting threads	Weight (g)
	B	L		
1/8 KSFG	14	27	Rc 1/8	35
1/4 KSFG	19	35	Rc 1/4	60
3/8 KSFG	23	42	Rc 3/8	1 00
1/2 KSFG	29	56	Rc 1/2	2 20
3/4 KSFG	32	64	Rc 3/4	2 70
1 KSFG	41	74	Rc 1	6 30

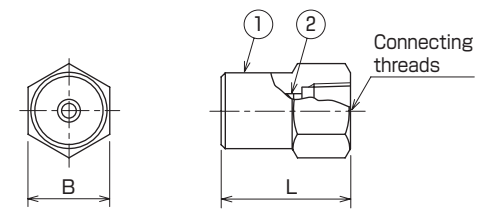
● KSFHS type



Model	Dimension (mm)		Connecting threads	Weight (g)
	B	L		
1/8 KSFHS	10	18	R 1/8	15
1/4 KSFHS	14	25	R 1/4	20
3/8 KSFHS	17	32	R 3/8	50
1/2 KSFHS	22	38	R 1/2	80
3/4 KSFHS	27	50	R 3/4	160
1 KSFHS	35	60	R 1	320

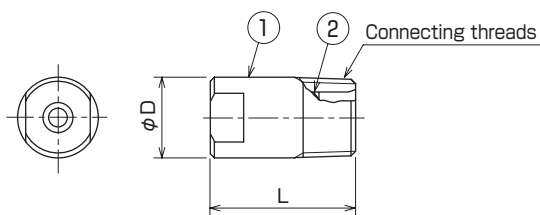
No.	Part name
①	Nozzle body
②	Core

● KSDH type



Model	Dimension (mm)		Connecting threads	Weight (g)
	B	L		
1/8 KSFH	14	22	Rc 1/8	25
1/4 KSFH	19	32	Rc 1/4	55
3/8 KSFH	22	38	Rc 3/8	90
1/2 KSFH	27	50	Rc 1/2	170
3/4 KSFH	32	64	Rc 3/4	230
1 KSFH	41	80	Rc 1	450

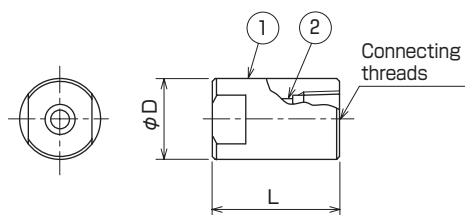
● KSFS type



Model	Dimension (mm)		Connecting threads	Weight (g)
	φ D	L		
1/8 KSFS	10	18	R 1/8	10
1/4 KSFS	14	25	R 1/4	25
3/8 KSFS	17	32	R 3/8	50
1/2 KSFS	22	38	R 1/2	95
3/4 KSFS	27	50	R 3/4	165
1 KSFS	35	60	R 1	300
1 1/4 KSFS	42	70	R 1 1/4	500
1 1/2 KSFS	48	85	R 1 1/2	700

No.	Part name
①	Nozzle body
②	Core

● KSFI type

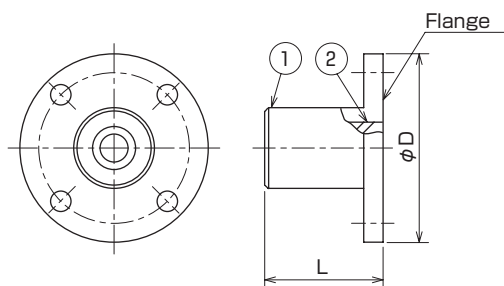


Model	Dimension (mm)		Connecting threads	Weight (g)
	φ D	L		
1/8 KSFI	14	22	Rc 1/8	20
1/4 KSFI	19	32	Rc 1/4	60
3/8 KSFI	22	38	Rc 3/8	85
1/2 KSFI	27	50	Rc 1/2	170
3/4 KSFI	35	64	Rc 3/4	350
1 KSFI	42	80	Rc 1	550

Model	Dimension (mm)		Connecting threads	Weight (kg)
	φ D	L		
1 1/4 KSFI	50	95	Rc 1 1/4	1.0
1 1/2 KSFI	60	110	Rc 1 1/2	1.5
2 KSFI	70	130	Rc 2	2.5
2 1/2 KSFI	90	160	Rc 2 1/2	3.6
3 KSFI	105	190	Rc 3	6.0
4 KSFI	135	240	Rc 4	13
5 KSFI	160	300	Rc 5	22
6 KSFI	190	360	Rc 6	32
8 KSFI	240	480	Rc 8	70

※Dimensions of nozzles with connecting threads of Rc 3 and higher are somewhat variable depending on particular specifications.

● KSF...F type



No.	Part name
①	Nozzle body
②	Core

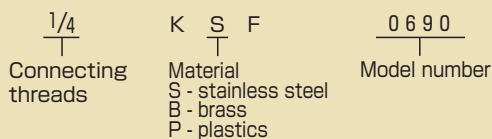
Model	Dimension (mm)		Flange size	Weight (kg)
	φ D	L		
2 KSF...F	130	110	2B	3.0
2 1/2 KSF...F	155	140	2 1/2 B	3.8
3 KSF...F	180	160	3B	6.0
4 KSF...F	200	200	4B	12
5 KSF...F	235	260	5B	19
6 KSF...F	265	320	6B	26
8 KSF...F	320	440	8B	60

※Dimensions of nozzles with flange size 3B and higher are somewhat variable depending on particular specifications.

NPT thread is also available.

※Flanges conform to JIS 5 k flanges as a standard specification.

● Model and Model Number representing



● Standard type model number list (connecting threads: 1/8 to 1)

● : Model availability

Connecting threads	Model						Model number	Minimum orifice diameter (mm)	Flow rate (L/min) at following pressure (MPa)							Spray angle at following pressure (MPa)			
	R threads			Rc threads					0.05	0.1	0.2	0.3	0.5	0.7	1.0	0.1	0.3	0.5	0.7
	KSF	KSFHS	KSFS	KSFG	KSFH	KSFI													
1/8	●	●	●	●	●	●	00865	0.5		0.50	0.67	0.80	1.00	1.15	1.34	55°	65°	57°	43°
	●	●	●	●	●	●	00890	0.5		0.50	0.67	0.80	1.00	1.15	1.34	80°	90°	74°	56°
	●	●	●	●	●	●	0165	0.6		0.62	0.84	1.00	1.25	1.44	1.68	55°	65°	57°	43°
	●	●	●	●	●	●	0190	0.6		0.62	0.84	1.00	1.25	1.44	1.68	80°	90°	74°	56°
	●	●	●	●	●	●	01565	0.7		0.94	1.26	1.50	1.87	2.2	2.5	55°	65°	57°	43°
	●	●	●	●	●	●	01590	0.7		0.94	1.26	1.50	1.87	2.2	2.5	80°	90°	74°	56°
	●	●	●	●	●	●	0265	0.8		1.25	1.68	2.0	2.5	2.9	3.4	55°	65°	57°	43°
	●	●	●	●	●	●	0290	0.8		1.25	1.68	2.0	2.5	2.9	3.4	80°	90°	74°	56°
	●	●	●	●	●	●	0365	1.0		1.87	2.5	3.0	3.7	4.3	5.0	58°	65°	58°	45°
●	●	●	●	●	●	0390	1.0		1.87	2.5	3.0	3.7	4.3	5.0	82°	90°	74°	56°	
1/4	●	●	●	●	●	●	0465	1.2	1.85	2.5	3.4	4.0	5.0	5.8	6.7	58°	65°	58°	45°
	●	●	●	●	●	●	0490	1.2	1.85	2.5	3.4	4.0	5.0	5.8	6.7	82°	90°	74°	56°
	●	●	●	●	●	●	04120W	1.2	1.85	2.5	3.4	4.0	5.0	5.8	6.7	115°	120°	105°	90°
	●	●	●	●	●	●	0665	1.4	2.8	3.7	5.0	6.0	7.5	8.6	10.1	58°	65°	58°	45°
	●	●	●	●	●	●	0690	1.4	2.8	3.7	5.0	6.0	7.5	8.6	10.1	82°	90°	76°	60°
	●	●	●	●	●	●	06120W	1.4	2.8	3.7	5.0	6.0	7.5	8.6	10.1	115°	120°	105°	90°
	●	●	●	●	●	●	0865	1.6	3.7	5.0	6.7	8.0	10.0	11.5	13.4	58°	65°	58°	45°
	●	●	●	●	●	●	0890	1.6	3.7	5.0	6.7	8.0	10.0	11.5	13.4	82°	90°	76°	60°
	●	●	●	●	●	●	08120W	1.6	3.7	5.0	6.7	8.0	10.0	11.5	13.4	117°	120°	107°	92°
3/8	●	●	●	●	●	●	1065	1.9	4.6	6.2	8.4	10.0	12.5	14.4	16.8	60°	65°	60°	48°
	●	●	●	●	●	●	1090	1.9	4.6	6.2	8.4	10.0	12.5	14.4	16.8	84°	90°	76°	60°
	●	●	●	●	●	●	10120W	1.9	4.6	6.2	8.4	10.0	12.5	14.4	16.8	117°	120°	107°	92°
	●	●	●	●	●	●	1565	2.2	6.9	9.4	12.6	15.0	18.7	21.6	25.2	60°	65°	60°	48°
	●	●	●	●	●	●	1590	2.2	6.9	9.4	12.6	15.0	18.7	21.6	25.2	84°	90°	76°	60°
	●	●	●	●	●	●	15120W	2.2	6.9	9.4	12.6	15.0	18.7	21.6	25.2	117°	120°	107°	92°
1/2	●	●	●	●	●	●	2065	2.5	9.3	12.5	16.8	20.0	24.9	28.8	33.6	60°	65°	60°	48°
	●	●	●	●	●	●	2090	2.5	9.3	12.5	16.8	20.0	24.9	28.8	33.6	84°	90°	76°	60°
	●	●	●	●	●	●	20120W	2.5	9.3	12.5	16.8	20.0	24.9	28.8	33.6	117°	120°	107°	92°
	●	●	●	●	●	●	2565	2.8	11.6	15.6	21.0	25.0	31.2	36.0	42.0	60°	65°	60°	48°
	●	●	●	●	●	●	2590	2.8	11.6	15.6	21.0	25.0	31.2	36.0	42.0	84°	90°	76°	60°
	●	●	●	●	●	●	25120W	2.8	11.6	15.6	21.0	25.0	31.2	36.0	42.0	119°	120°	109°	94°
3/4	●	●	●	●	●	●	3065	3.1	13.9	18.7	25.2	30.0	37.4	43.2	50.4	62°	65°	60°	48°
	●	●	●	●	●	●	3090	3.1	13.9	18.7	25.2	30.0	37.4	43.2	50.4	86°	90°	76°	60°
	●	●	●	●	●	●	30120W	3.1	13.9	18.7	25.2	30.0	37.4	43.2	50.4	119°	120°	109°	94°
	●	●	●	●	●	●	3565	3.4	16.2	21.8	29.4	35.0	43.6	50.4	58.8	62°	65°	60°	48°
	●	●	●	●	●	●	3590	3.4	16.2	21.8	29.4	35.0	43.6	50.4	58.8	86°	90°	76°	60°
	●	●	●	●	●	●	35120W	3.4	16.2	21.8	29.4	35.0	43.6	50.4	58.8	119°	120°	109°	94°
	●	●	●	●	●	●	4070	3.7	18.5	25.0	33.6	40.0	49.9	57.6	67.2	68°	70°	65°	53°
	●	●	●	●	●	●	4090	3.7	18.5	25.0	33.6	40.0	49.9	57.6	67.2	86°	90°	78°	65°
	●	●	●	●	●	●	40120W	3.7	18.5	25.0	33.6	40.0	49.9	57.6	67.2	121°	120°	111°	96°
	●	●	●	●	●	●	4570	4.0	20.8	28.1	37.8	45.0	56.1	64.8	75.6	68°	70°	65°	53°
	●	●	●	●	●	●	4590	4.0	20.8	28.1	37.8	45.0	56.1	64.8	75.6	88°	90°	78°	65°
	●	●	●	●	●	●	45120W	4.0	20.8	28.1	37.8	45.0	56.1	64.8	75.6	121°	120°	111°	96°
●	●	●	●	●	●	5070	4.3	23.2	31.2	42.0	50.0	62.3	72.0	84.0	68°	70°	65°	53°	
●	●	●	●	●	●	5090	4.3	23.2	31.2	42.0	50.0	62.3	72.0	84.0	88°	90°	78°	65°	
●	●	●	●	●	●	50120W	4.3	23.2	31.2	42.0	50.0	62.3	72.0	84.0	121°	120°	111°	96°	
1	●	●	●	●	●	●	6070	4.6	27.8	37.4	50.4	60.0	74.8	86.4	101	68°	70°	65°	53°
	●	●	●	●	●	●	6090	4.6	27.8	37.4	50.4	60.0	74.8	86.4	101	88°	90°	78°	65°
	●	●	●	●	●	●	60120W	4.6	27.8	37.4	50.4	60.0	74.8	86.4	101	123°	120°	113°	98°
	●	●	●	●	●	●	7070	4.9	32.4	43.7	58.8	70.0	87.3	101	118	70°	70°	65°	55°
	●	●	●	●	●	●	7090	4.9	32.4	43.7	58.8	70.0	87.3	101	118	90°	90°	78°	65°
	●	●	●	●	●	●	70120W	4.9	32.4	43.7	58.8	70.0	87.3	101	118	123°	120°	113°	98°
	●	●	●	●	●	●	8070	5.2	37.1	49.9	67.3	80.0	99.7	115	134	70°	70°	65°	55°
	●	●	●	●	●	●	8090	5.2	37.1	49.9	67.3	80.0	99.7	115	134	90°	90°	78°	65°
	●	●	●	●	●	●	80120W	5.2	37.1	49.9	67.3	80.0	99.7	115	134	123°	120°	113°	98°
	●	●	●	●	●	●	9070	5.6	41.7	56.2	75.7	90.0	112	130	151	70°	70°	65°	55°
	●	●	●	●	●	●	9090	5.6	41.7	56.2	75.7	90.0	112	130	151	90°	90°	78°	65°
●	●	●	●	●	●	90120W	5.6	41.7	56.2	75.7	90.0	112	130	151	125°	120°	109°	98°	

● Standard type model number list (connecting threads: 1¼ to 2½)

●: Model availability

Connecting threads	Model			Model number	Minimum orifice diameter (mm)	Flow rate (L/min) at following pressure (MPa)								Spray angle at following pressure (MPa)			
	R threads	Rc threads	Flange														
	KSFS	KSFI	KSF...F			0.05	0.1	0.2	0.3	0.5	0.7	1.0	0.05	0.1	0.3	0.5	
1¼	●			9070	5.6	41.7	56.2	75.7	90.0	112	130	151	65°	70°	70°	65°	
	●			9090	5.6	41.7	56.2	75.7	90.0	112	130	151	80°	92°	90°	80°	
	●			90120W	5.6	41.7	56.2	75.7	90.0	112	130	151	112°	125°	120°	109°	
	●	●		10070	5.9	46.3	62.4	84.1	100	125	144	168	65°	70°	70°	65°	
	●	●		10090	5.9	46.3	62.4	84.1	100	125	144	168	80°	92°	90°	80°	
	●	●		100120W	5.9	46.3	62.4	84.1	100	125	144	168	112°	125°	120°	109°	
	●	●		12570	6.6	57.9	78.0	105	125	156	180	210	67°	72°	70°	67°	
	●	●		12590	6.6	57.9	78.0	105	125	156	180	210	82°	94°	90°	81°	
	●	●		125120W	6.6	57.9	78.0	105	125	156	180	210	115°	128°	120°	110°	
1½	●	●		15070	7.2	69.5	93.6	126	150	187	216	252	67°	72°	70°	67°	
	●	●		15090	7.2	69.5	93.6	126	150	187	216	252	82°	94°	90°	81°	
	●	●		150120W	7.2	69.5	93.6	126	150	187	216	252	115°	128°	120°	110°	
		●		17570	7.8	81.1	109	147	175	218	252	294	67°	72°	70°	67°	
		●		17590	7.8	81.1	109	147	175	218	252	294	84°	96°	90°	82°	
		●		175120W	7.8	81.1	109	147	175	218	252	294	118°	131°	120°	111°	
		●		20070	8.4	92.6	125	168	200	249	288	336	67°	72°	70°	67°	
		●		20090	8.4	92.6	125	168	200	249	288	336	84°	96°	90°	82°	
		●		200120W	8.4	92.6	125	168	200	249	288	336	118°	131°	120°	111°	
		●		22570	8.9	104	140	189	225	280	324	378	67°	72°	70°	67°	
		●		22590	8.9	104	140	189	225	280	324	378	84°	96°	90°	82°	
		●		225120W	8.9	104	140	189	225	280	324	378	118°	131°	120°	111°	
		●		25070	9.4	116	156	210	250	312	360	420	67°	72°	70°	67°	
		●		25090	9.4	116	156	210	250	312	360	420	84°	96°	90°	82°	
		●		250120W	9.4	116	156	210	250	312	360	420	118°	131°	120°	111°	
		●		27570	9.9	127	172	231	275	343	396	462	67°	72°	70°	67°	
		●		27590	9.9	127	172	231	275	343	396	462	84°	96°	90°	82°	
		●		275120W	9.9	127	172	231	275	343	396	462	118°	131°	120°	111°	
2		●	●	30070	10.3	139	187	252	300	374	432	504	67°	74°	70°	67°	
		●	●	30090	10.3	139	187	252	300	374	432	504	86°	98°	90°	83°	
		●	●	300120W	10.3	139	187	252	300	374	432	504	121°	134°	120°	112°	
		●	●	32570	10.7	151	203	273	325	405	468	546	67°	74°	70°	67°	
		●	●	32590	10.7	151	203	273	325	405	468	546	86°	98°	90°	83°	
		●	●	325120W	10.7	151	203	273	325	405	468	546	121°	134°	120°	112°	
		●	●	35070	11.1	162	218	294	350	436	504	588	67°	74°	70°	67°	
		●	●	35090	11.1	162	218	294	350	436	504	588	86°	98°	90°	83°	
		●	●	350120W	11.1	162	218	294	350	436	504	588	121°	134°	120°	112°	
		●	●	40070	11.9	185	250	336	400	499	576	672	67°	74°	70°	67°	
		●	●	40090	11.9	185	250	336	400	499	576	672	86°	98°	90°	83°	
		●	●	400120W	11.9	185	250	336	400	499	576	672	121°	134°	120°	112°	
		●	●	45070	12.6	208	281	378	450	561	648	756	67°	74°	70°	67°	
		●	●	45090	12.6	208	281	378	450	561	648	756	86°	98°	90°	83°	
		●	●	450120W	12.6	208	281	378	450	561	648	756	121°	134°	120°	112°	
		●	●	50070	13.3	232	312	420	500	623	720	840	67°	76°	70°	67°	
		●	●	50090	13.3	232	312	420	500	623	720	840	88°	100°	90°	84°	
		●	●	500120W	13.3	232	312	420	500	623	720	840	123°	136°	120°	113°	
2½		●	●	60070	14.5	278	374	504	600	748	864	1008	67°	76°	70°	67°	
		●	●	60090	14.5	278	374	504	600	748	864	1008	88°	100°	90°	84°	
		●	●	600120W	14.5	278	374	504	600	748	864	1008	123°	136°	120°	113°	
		●	●	70070	15.7	324	437	588	700	873	1008	1176	67°	76°	70°	67°	
		●	●	70090	15.7	324	437	588	700	873	1008	1176	88°	100°	90°	84°	
		●	●	700120W	15.7	324	437	588	700	873	1008	1176	123°	136°	120°	113°	
		●	●	80070	16.8	371	499	673	800	997	1153	1344	67°	76°	70°	67°	
		●	●	80090	16.8	371	499	673	800	997	1153	1344	88°	100°	90°	84°	
		●	●	800120W	16.8	371	499	673	800	997	1153	1344	123°	136°	120°	113°	

Note: Method to calculate spray angles

- The spray angle for nozzle model numbers 80120W or less is calculated from the effective spray diameter at a distance of 300mm when spraying downward.
- The spray angle for nozzle model numbers 9070 or more and 800120W or less is calculated from the effective spray diameter at a distance of 500mm when spraying downward.

● Standard type model number list (connecting threads: 3 to 8)

●: Model availability

Connecting threads	Model		Model number	Minimum orifice diameter (mm)	Flow rate (L/min) at following pressure (MPa)							Spray angle at following pressure (MPa)			
	Rc threads	Flange			0.03	0.05	0.07	0.1	0.15	0.2	0.3	0.03	0.07	0.15	0.3
	KSF1	KSF...F													
3	●	●	90090	17	335	417	482	562	669	757	900	73°	90°	95°	92°
	●	●	900120W	17	335	417	482	562	669	757	900	108°	120°	127°	114°
	●	●	100090	18	372	463	535	624	743	841	1000	73°	90°	94°	90°
	●	●	1000120W	18	372	463	535	624	743	841	1000	110°	120°	124°	112°
4	●	●	125090	20	465	579	669	780	929	1051	1250	67°	90°	94°	90°
	●	●	1250120W	20	465	579	669	780	929	1051	1250	110°	120°	124°	112°
	●	●	150090	22	558	695	803	936	1114	1261	1500	73°	90°	93°	88°
	●	●	1500120W	22	558	695	803	936	1114	1261	1500	112°	120°	121°	110°
5	●	●	175090	24	651	811	937	1092	1300	1471	1750	73°	90°	93°	88°
	●	●	1750120W	24	651	811	937	1092	1300	1471	1750	112°	120°	121°	110°
	●	●	200090	26	744	926	1071	1248	1486	1681	2000	79°	90°	92°	86°
	●	●	2000120W	26	744	926	1071	1248	1486	1681	2000	115°	120°	118°	107°
	●	●	250090	29	930	1158	1338	1560	1857	2102	2500	79°	90°	92°	86°
6	●	●	2500120W	29	930	1158	1338	1560	1857	2102	2500	115°	120°	118°	107°
	●	●	300090	32	1115	1390	1606	1872	2229	2522	3000	85°	90°	90°	85°
	●	●	3000120W	32	1115	1390	1606	1872	2229	2522	3000	117°	120°	115°	105°
	●	●	350090	34	1301	1621	1873	2184	2600	2942	3500	85°	90°	90°	85°
	●	●	3500120W	34	1301	1621	1873	2184	2600	2942	3500	117°	120°	115°	105°
	●	●	400090	37	1487	1853	2141	2496	2971	3363	4000	89°	90°	88°	83°
8	●	●	4000120W	37	1487	1853	2141	2496	2971	3363	4000	119°	120°	113°	103°
	●	●	450090	39	1673	2084	2409	2808	3343	3783	4500	89°	90°	88°	83°
	●	●	4500120W	39	1673	2084	2409	2808	3343	3783	4500	119°	120°	113°	103°
	●	●	500090	41	1859	2316	2676	3120	3714	4203	5000	90°	90°	85°	82°
	●	●	5000120W	41	1859	2316	2676	3120	3714	4203	5000	120°	120°	111°	101°
	●	●	600090	45	2231	2779	3212	3744	4457	5044	6000	90°	90°	85°	82°
	●	●	6000120W	45	2231	2779	3212	3744	4457	5044	6000	120°	120°	111°	101°

Note: Method to calculate spray angles

- The spray angle for nozzle model numbers 90090 or more is calculated from the effective spray diameter at a distance of 1000mm when spraying downward.

● Performance data

