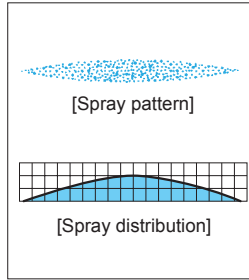


Three-piece Structure Standard Flat Spray Nozzles

VV: Made-to-Order

VV / V

Flat Spray



- Flat spray pattern with a mountain-shaped spray distribution and gradually tapered edges.
- Tapered edges overlap to provide uniform spray distribution in multi-nozzle arrangements.

[STANDARD PRESSURE]
0.3 MPa

[APPLICATIONS]

Cleaning: Automotives, containers, films, felts, filters, screens, bottles, crushed stone, earth and sand, metal parts, machines, steel plates and pieces
 Spraying: Etchants, oils, lubricants, glues, solutions, insecticides, herbicides
 Cooling: Gas, heat exchangers, tanks, steel, roofs
 Water screen: Fire protection, heat protection, dust suppression, deodorization

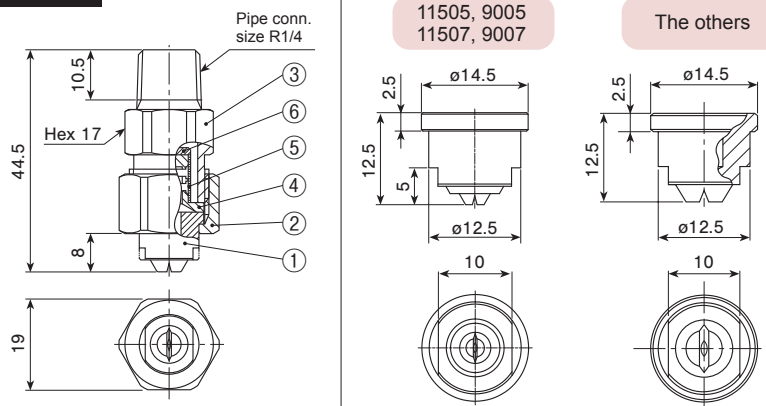
VV SERIES (all metal)

Made-to-Order

Structure	<ul style="list-style-type: none"> • Three-piece structure, made of metal. • Includes three parts: Nozzle tips, cap, and adaptor. Worn-out nozzle tips can be replaced separately. • Small spray capacity models come with or without a strainer.
Material	<ul style="list-style-type: none"> • S303 SPECIAL ORDER MATERIAL: S316 or others
Weight	<ul style="list-style-type: none"> • Complete assembly^{*1}: 47 g • Nozzle tip: 11 g

*1) With strainer, add 5 g to the above weight and 2 mm to the total length.

DRAWING



Complete Assembly

Nozzle Tip

Nozzle (①Nozzle tip ②Cap ③Adaptor)

Strainer (④Strainer holder ⑤Strainer screen [S316] ⑥Strainer cap)

Unit: mm

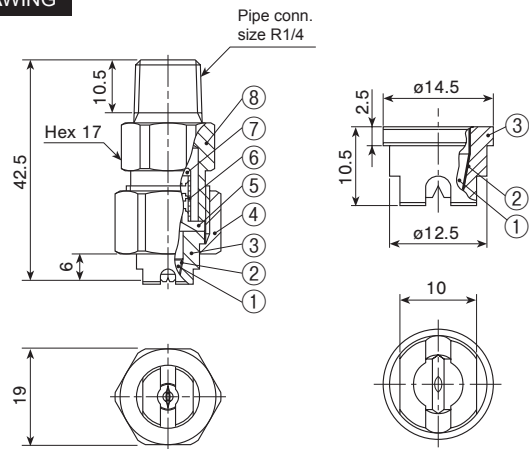
[Note] Appearance and dimensions may differ slightly depending on material and nozzle code.

V SERIES (with ceramic orifice)

Structure	<ul style="list-style-type: none"> • Three-piece structure with a ceramic orifice insert. • Includes three parts: Nozzle tips, cap, and adaptor. Worn-out nozzle tips can be replaced separately. • Small spray capacity models come with or without a strainer.
Material	<ul style="list-style-type: none"> • Nozzle orifice: ceramic • Tip retainer: S303 • Cap, Adaptor, and Strainer: S303 SPECIAL ORDER MATERIAL: S316 or others
Weight	<ul style="list-style-type: none"> • Complete assembly^{*1}: 43 g • Nozzle tip: 6.6 g

*1) With strainer, add 5 g to the above weight and 2 mm to the total length.

DRAWING



Nozzle (①Ceramic orifice ②Adhesive: Araldite® ③Tip retainer)

Strainer (⑤Strainer holder ⑥Strainer screen [S316] ⑦Strainer cap)

Unit: mm

[Note] Appearance and dimensions may differ slightly depending on material and nozzle code.

Three-piece Structure Standard Flat Spray Nozzles

VV/V SERIES

Flat Spray

Spray angle code	Spray capacity code	VV ²	V	Spray angle (°)			Spray capacity (L/min)										Mean drop. dia. (µm)	Free pass. dia. (mm)	Strainer mesh size
				0.15 MPa	0.3 MPa	0.7 MPa	0.05 MPa	0.1 MPa	0.15 MPa	0.2 MPa	0.3 MPa	0.5 MPa	0.7 MPa	1 MPa	2 MPa				
115	03		●	101	115	124	-	0.17	0.21	0.24	0.30	0.39	0.46	0.55	0.77	140	0.2	200	
	04		●	102	115	124	-	0.23	0.28	0.33	0.40	0.52	0.61	0.73	1.03	150	0.2	200	
	05	●	●	102	115	124	-	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	160	0.3	150	
	07	●	●	103	115	124	-	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	160	0.3	150	
	10	●	●	103	115	124	0.41	0.58	0.71	0.82	1.00	1.29	1.53	1.83	2.58	170	0.4	150	
	15	●	●	104	115	123	0.61	0.87	1.06	1.23	1.50	1.94	2.29	2.74	3.87	170	0.5	100	
	20	●	●	104	115	123	0.82	1.15	1.41	1.63	2.00	2.58	3.06	3.65	5.16	270	0.6	100	
	30	●	●	105	115	122	1.23	1.73	2.12	2.45	3.00	3.88	4.58	5.48	7.75	270	0.8	50	
	40	●	●	106	115	122	1.63	2.31	2.83	3.27	4.00	5.16	6.11	7.30	10.3	270	0.8	50	
	60	○	○	107	115	121	2.45	3.46	4.24	4.90	6.00	7.75	9.17	11.0	15.5	510	1.0	-	
	80	○	○	107	115	121	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	510	1.2	-	
	100	○	○	107	115	120	4.08	5.77	7.07	8.17	10.0	12.9	15.3	18.3	25.8	510	1.7	-	
200	○	○	109	115	120	8.16	11.5	14.1	16.3	20.0	25.8	30.6	36.5	51.6	510	2.4	-		
90	02		●	76	90	100	-	0.12	0.14	0.16	0.20	0.26	0.31	0.37	0.52	145	0.2	200	
	03		●	76	90	100	-	0.17	0.21	0.24	0.30	0.39	0.46	0.55	0.77	150	0.2	200	
	04		●	77	90	100	-	0.23	0.28	0.33	0.40	0.52	0.61	0.73	1.03	170	0.3	150	
	05	●	●	77	90	100	-	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	170	0.3	150	
	07	●	●	78	90	100	-	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	170	0.4	150	
	10	●	●	78	90	99	0.41	0.58	0.71	0.82	1.00	1.29	1.53	1.83	2.58	170	0.5	100	
	15	●	●	79	90	99	0.61	0.87	1.06	1.23	1.50	1.94	2.29	2.74	3.87	170	0.6	100	
	20	●	●	79	90	98	0.82	1.15	1.41	1.63	2.00	2.58	3.06	3.65	5.16	280	0.7	50	
	30	●	●	80	90	97	1.23	1.73	2.12	2.45	3.00	3.88	4.58	5.48	7.75	280	0.9	50	
	40	○	○	81	90	97	1.63	2.31	2.83	3.27	4.00	5.16	6.11	7.30	10.3	540	1.1	-	
	50	○	○	81	90	97	2.04	2.89	3.54	4.08	5.00	6.46	7.64	9.13	12.9	540	1.2	-	
	60	○	○	82	90	96	2.45	3.46	4.24	4.90	6.00	7.75	9.17	11.0	15.5	540	1.3	-	
80	○	○	82	90	96	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	540	1.5	-		
100	○	○	82	90	96	4.08	5.77	7.07	8.17	10.0	12.9	15.3	18.3	25.8	540	1.7	-		
120	○	○	83	90	95	4.90	6.93	8.49	9.80	12.0	15.5	18.3	21.9	31.0	540	2.0	-		
140	○	○	83	90	95	5.72	8.08	9.90	11.4	14.0	18.1	21.4	25.6	36.1	540	2.2	-		
170	○	○	83	90	95	6.94	9.82	12.0	13.9	17.0	22.0	26.0	31.1	43.9	540	2.4	-		
200	○	○	84	90	95	8.16	11.5	14.1	16.3	20.0	25.8	30.6	36.5	51.6	540	2.6	-		
80	02		●	67	80	90	-	0.12	0.14	0.16	0.20	0.26	0.31	0.37	0.52	150	0.2	200	
	03		●	67	80	90	-	0.17	0.21	0.24	0.30	0.39	0.46	0.56	0.77	150	0.3	150	
	04		●	67	80	90	-	0.23	0.28	0.33	0.40	0.52	0.61	0.73	1.03	150	0.3	150	
	05	●	●	67	80	90	-	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	180	0.3	150	
	07	●	●	68	80	89	-	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	180	0.4	150	
	10	●	●	68	80	89	0.41	0.58	0.71	0.82	1.00	1.29	1.53	1.83	2.58	180	0.5	100	
	15	●	●	69	80	88	0.61	0.87	1.06	1.23	1.50	1.94	2.29	2.74	3.87	180	0.7	50	
	20	●	●	69	80	88	0.82	1.15	1.41	1.63	2.00	2.58	3.06	3.65	5.16	290	0.8	50	
	30	○	○	70	80	87	1.23	1.73	2.12	2.45	3.00	3.88	4.58	5.48	7.75	290	1.0	-	
	40	○	○	71	80	87	1.63	2.31	2.83	3.27	4.00	5.16	6.11	7.30	10.3	540	1.2	-	
	50	○	○	71	80	86	2.04	2.89	3.54	4.08	5.00	6.46	7.64	9.13	12.9	540	1.4	-	
	60	○	○	72	80	86	2.45	3.46	4.24	4.90	6.00	7.75	9.17	11.0	15.5	540	1.5	-	
80	○	○	72	80	86	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	540	1.7	-		
100	○	○	72	80	85	4.08	5.77	7.07	8.17	10.0	12.9	15.3	18.3	25.8	540	1.7	-		
120	○	○	73	80	85	4.90	6.93	8.49	9.80	12.0	15.5	18.3	21.9	31.0	540	2.1	-		
200	○	○	74	80	85	8.16	11.5	14.1	16.3	20.0	25.8	30.6	36.5	51.6	540	2.9	-		
65	02		●	52	65	75	-	0.12	0.14	0.16	0.20	0.26	0.31	0.37	0.52	155	0.2	200	
	03		●	52	65	75	-	0.17	0.21	0.24	0.30	0.39	0.46	0.55	0.77	160	0.3	150	
	04		●	52	65	75	-	0.23	0.28	0.33	0.40	0.52	0.61	0.73	1.03	170	0.3	150	
	05	●	●	52	65	74	-	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	190	0.4	150	
	07	●	●	53	65	74	-	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	190	0.5	100	
	10	●	●	54	65	73	0.41	0.58	0.71	0.82	1.00	1.29	1.53	1.83	2.58	190	0.6	100	
	15	●	●	54	65	73	0.61	0.87	1.06	1.23	1.50	1.94	2.29	2.74	3.87	190	0.8	50	
	20	●	●	55	65	72	0.82	1.15	1.41	1.63	2.00	2.58	3.06	3.65	5.16	310	0.9	50	
	30	○	○	56	65	72	1.23	1.73	2.12	2.45	3.00	3.88	4.58	5.48	7.75	310	1.1	-	
	40	○	○	56	65	71	1.63	2.31	2.83	3.27	4.00	5.16	6.11	7.30	10.3	540	1.3	-	
	50	○	○	57	65	71	2.04	2.89	3.54	4.08	5.00	6.46	7.64	9.13	12.9	540	1.5	-	
	60	○	○	57	65	71	2.45	3.46	4.24	4.90	6.00	7.75	9.17	11.0	15.5	540	1.6	-	
80	○	○	58	65	71	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	540	1.9	-		
100	○	○	58	65	70	4.08	5.77	7.07	8.17	10.0	12.9	15.3	18.3	25.8	540	2.1	-		
120	○	○	58	65	70	4.90	6.93	8.49	9.80	12.0	15.5	18.3	21.9	31.0	540	2.3	-		
140	○	○	59	65	69	5.72	8.08	9.90	11.4	14.0	18.1	21.4	25.6	36.1	540	2.5	-		
170	○	○	59	65	69	6.94	9.82	12.0	13.9	17.0	22.0	26.0	31.1	43.9	540	2.8	-		
200	○	○	59	65	69	8.16	11.5	14.1	16.3	20.0	25.8	30.6	36.5	51.6	540	3.0	-		
50	03		●	37	50	60	-	0.17	0.21	0.24	0.30	0.39	0.46	0.55	0.77	180	0.3	150	
	04		●	37	50	60	-	0.23	0.28	0.33	0.40	0.52	0.61	0.73	1.03	180	0.4	150	
	05	●	●	38	50	59	-	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	210	0.4	150	
	07	●	●	38	50	58	-	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	210	0.5	100	
	10	●	●	40	50	58	0.41	0.58	0.71	0.82	1.00	1.29	1.53	1.83	2.58	210	0.6	100	
	15	●	●	40	50	57	0.61	0.87	1.06	1.23	1.50								

Three-piece Structure Standard Flat Spray Nozzles

VV/V SERIES

Flat Spray

Spray angle code	Spray capacity code	VV ²	V	Spray angle (°)			Spray capacity (L/min)								Mean drop. dia. (µm)	Free pass. dia. (mm)	Strainer mesh size	
				0.15 MPa	0.3 MPa	0.7 MPa	0.05 MPa	0.1 MPa	0.15 MPa	0.2 MPa	0.3 MPa	0.5 MPa	0.7 MPa	1 MPa				2 MPa
40	05	●		30	40	48	—	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	230	0.4	150
	07	●		30	40	48	—	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	∩	0.5	100
	10	●		31	40	47	0.41	0.58	0.71	0.82	1.00	1.29	1.53	1.83	2.58	∩	0.7	50
	20	○		32	40	46	0.82	1.15	1.41	1.63	2.00	2.58	3.06	3.65	5.16	380	1.0	—
	30	○		33	40	46	1.23	1.73	2.12	2.45	3.00	3.88	4.58	5.48	7.75	∩	1.3	—
	40	○		33	40	45	1.63	2.31	2.83	3.27	4.00	5.16	6.11	7.30	10.3	∩	1.5	—
	80	○		34	40	44	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	∩	2.1	—
	120	○		35	40	44	4.90	6.93	8.49	9.80	12.0	15.5	18.3	21.9	31.0	∩	2.8	—
200	○		35	40	43	8.16	11.5	14.1	16.3	20.0	25.8	30.6	36.5	51.6	710	3.5	—	
25	05	●		18	25	32	—	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	270	0.5	100
	07	●		18	25	32	—	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	∩	0.6	100
	10	●		18	25	32	0.41	0.58	0.71	0.82	1.00	1.29	1.53	1.83	2.58	∩	0.8	50
	15	○		19	25	31	0.61	0.87	1.06	1.23	1.50	1.94	2.29	2.74	3.87	440	1.0	—
	30	○		19	25	30	1.23	1.73	2.12	2.45	3.00	3.88	4.58	5.48	7.75	∩	1.4	—
	40	○		19	25	30	1.63	2.31	2.83	3.27	4.00	5.16	6.11	7.30	10.3	∩	1.7	—
	80	○		20	25	29	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	∩	2.3	—
	200	○		21	25	27	8.16	11.5	14.1	16.3	20.0	25.8	30.6	36.5	51.6	850	4.0	—
15	05	●		9	15	22	—	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	310	0.5	100
	07	●		9	15	21	—	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	∩	0.7	50
	10	●		9	15	21	0.41	0.58	0.71	0.82	1.00	1.29	1.53	1.83	2.58	∩	0.8	50
	15	○		10	15	20	0.61	0.87	1.06	1.23	1.50	1.94	2.29	2.74	3.87	∩	1.0	—
	30	○		10	15	19	1.23	1.73	2.12	2.45	3.00	3.88	4.58	5.48	7.75	510	1.5	—
	40	○		10	15	19	1.63	2.31	2.83	3.27	4.00	5.16	6.11	7.30	10.3	∩	1.7	—
	80	○		11	15	18	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	∩	2.4	—
	200	○		11	15	17	8.16	11.5	14.1	16.3	20.0	25.8	30.6	36.5	51.6	1,000	4.0	—

●: Available with or without strainer ○: Only available without strainer

*2) The VV series is made-to-order.

HOW TO ORDER

To inquire about or order a specific nozzle please refer to this coding system.

① Complete Assembly

Example: 1/4M V 11505 S303W

1/4M	V	115	05	S303	W
Pipe conn. size ³	Series	Spray angle code	Spray capacity code	Material	Strainer
	■ VV ■ V	■ 115 ∩	■ 02 ∩ ■ 200		■ W (with strainer) ■ (Blank indicates "without strainer")

② Nozzle Tip Only

Example: 1/4 V 11505 S303

1/4	V	115	05	S303
	Series	Spray angle code	Spray capacity code	Material
	■ VV ■ V	■ 115 ∩	■ 02 ∩ ■ 200	

*3) "M" indicates male thread ("R" of the ISO standard), e.g. 1/4M = R1/4.

The VV series is made-to-order.