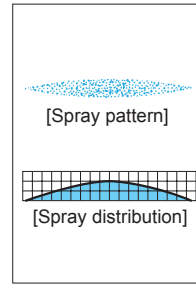


One-piece Structure Standard Flat Spray Nozzles

Some Models are Made-to-Order

VVP/VP

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, liquids, solutions, insecticides, herbicides
- Cooling: Gas, heat exchangers, tanks, steel, roofs
- Water screen: Fire protection, heat protection, dust suppression, deodorization

VVP SERIES

Size R1/2 or larger: made-to-order

Structure	<ul style="list-style-type: none"> • One-piece structure, made of metal or plastic. • Small spray capacity VVP nozzles made of metal come with or without a strainer.
Material	<ul style="list-style-type: none"> • S303, PP, or PVDF <p>SPECIAL ORDER MATERIAL: S316, PVC, or others</p>

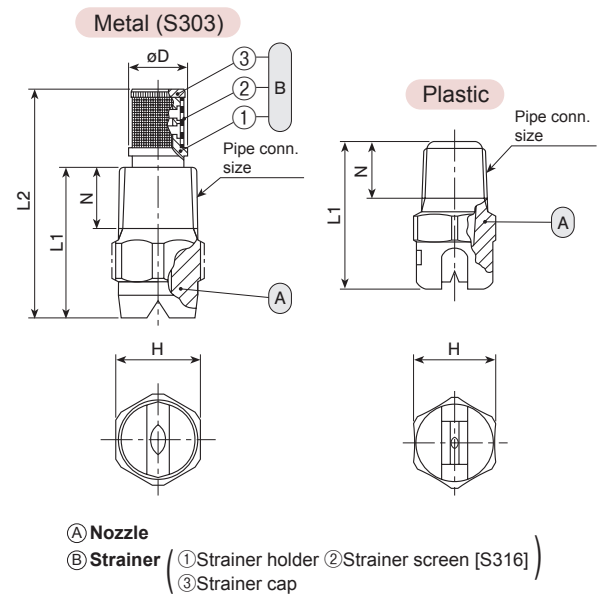
Material	Pipe conn. size	Dimensions (mm)					Weight (g)		
		L1	L2	H	øD	N	S303	PP	PVDF
Metal ^{1,2}	R1/8	18.5	31	12	7.5	6.5	10	—	—
	R1/4	25	40	14	10	10.5	21	—	—
	R3/8	30	—	19	—	10.5	37	—	—
	R1/2	38	—	23	—	14	65	—	—
	R3/4	45	—	29	—	15	110	—	—
Plastic	R1	55	—	35	—	18	170	—	—
	R1/8	22	—	12	—	8.5	—	1.1	2.1
	R1/4	27	—	14	—	11.5	—	2.2	4.3

*1) VVP nozzles with a spray capacity code of 20 or smaller differ in dimension (L1, L2) and shape. Contact us for details.

*2) With strainer, add 2g for R1/8 and 5g for R1/4 to the above weight.

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

DRAWING



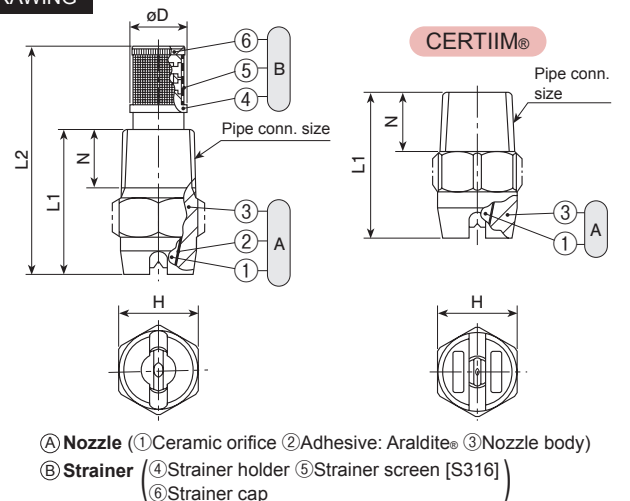
VP SERIES (with ceramic orifice)

Structure	<ul style="list-style-type: none"> • One-piece structure with a ceramic orifice insert. • Small spray capacity VP nozzles made of metal come with or without a strainer. • CERTIIM is a one-piece plastic nozzle molded around a ceramic orifice.
Material	<ul style="list-style-type: none"> • Nozzle orifice: ceramic • Metal parts: S303 or B (brass) • CERTIIM's plastic body: PVDF <p>SPECIAL ORDER MATERIAL: S316 or others</p>

Body material	Pipe conn. size	Dimensions (mm)					Weight (g)		
		L1	L2	H	øD	N	S303	B	CERTIIM
Metal ²	R1/8	16.5	30	12	7.5	6.5	8	9	—
	R1/4	26	40	14	10	10.5	20	22	—
PVDF (CERTIIM)	R1/8	22	—	12	—	8.5	—	—	2.1
	R1/4	26	—	14	—	10.5	—	—	6

*2) With strainer, add 2g for R1/8 and 5g for R1/4 to the above weight.

DRAWING



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

Spray angle code	Spray capacity code	Pipe connection size														Spray angle (°)			Spray capacity (L/min)								Mean drop. dia. (µm)	Free pass. dia. (mm)	Strainer mesh size	
		VVP ³							VP							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
		All metal					All plastic		Metal		CER-TIIM																			
		R1/8	R1/4	R3/8	R1/2	R3/4	R1	R1/8	R1/4	R1/8	R1/4	R1/8	R1/4	R1/8	R1/4															
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	190	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	—	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	—	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	—	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	—	1.1	—		
	40	○	○							○	○	○	○	56	65	71	1.63	2.31	2.83	3.27	4.00	5.16	6.11	7.30	10.3	—	1.3	—		
	50	○	○							○	○	○	○	57	65	71	2.04	2.89	3.54	4.08	5.00	6.46	7.64	9.13	12.9	—	1.5	—		
	60	○	○							○	○	○	○	57	65	71	2.45	3.46	4.24	4.90	6.00	7.75	9.17	11.0	15.5	—	1.6	—		
	80	○	○							○	○	○	○	58	65	71	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	—	1.9	—		
	100	○	○							○	○	○	○	58	65	70	4.08	5.77	7.07	8.17	10.0	12.9	15.3	18.3	25.8	—	2.1	—		
	120	○	○							○	○	○	○	58	65	70	4.90	6.93	8.49	9.80	12.0	15.5	18.3	21.9	31.0	—	2.3	—		
	140	○	○							○	○	○	○	59	65	69	5.72	8.08	9.90	11.4	14.0	18.1	21.4	25.6	36.1	—	2.5	—		
	170	○	○							○	○	○	○	59	65	69	6.94	9.82	12.0	13.9	17.0	22.0	26.0	31.1	43.9	—	2.8	—		
	200	○	○							○	○	○	○	59	65	69	8.16	11.5	14.1	16.3	20.0	25.8	30.6	36.5	51.6	580	3.0	—		
300	○	○	○						○	○	○	○	60	65	69	12.2	17.3	21.2	24.5	30.0	38.7	45.8	54.8	77.5	650	3.9	—			
400	○	○	○	○					○	○	○	○	60	65	68	16.3	23.1	28.3	32.7	40.0	51.6	61.1	73.0	103	—	4.7	—			
500	○	○	○	○	○				○	○	○	○	61	65	67	20.4	28.9	35.4	40.8	50.0	64.6	76.4	91.3	129	—	5.3	—			
600	○	○	○	○	○	○			○	○	○	○	61	65	67	24.5	34.6	42.4	49.0	60.0	77.5	91.7	110	155	—	5.7	—			
800	○	○	○	○	○	○	○		○	○	○	○	62	65	67	32.7	46.2	56.5	65.3	80.0	103	122	146	206	—	6.5	—			
1000	○	○	○	○	○	○	○	○		○	○	○	62	65	66	40.8	57.7	70.7	81.7	100	129	153	183	258	—	7.3	—			
1500	○	○	○	○	○	○	○	○	○		○	○	62	65	66	61.2	86.6	106	122	150	194	229	274	387	1,000	9.0	—			
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	—	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	—	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	—	0.6	100		
	15	○	○							○	○	○	○	40	50	57	0.61	0.87	1.06	1.23	1.50	1.94	2.29	2.74	3.87	—	0.8	50		
	20	○	○							○	○	○	○	41	50	57	0.82	1.15	1.41	1.63	2.00	2.58	3.06	3.65	5.16	—	1.0	—		
	30	○	○							○	○	○	○	42	50	56	1.23	1.73	2.12	2.45	3.00	3.88	4.58	5.48	7.75	340	1.2	—		
	40	○	○							○	○	○	○	42	50	56	1.63	2.31	2.83	3.27	4.00	5.16	6.11	7.30	10.3	—	1.4	—		
	50	○	○							○	○	○	○	43	50	55	2.04	2.89	3.54	4.08	5.00	6.46	7.64	9.13	12.9	—	1.6	—		
	60	○	○							○	○	○	○	43	50	55	2.45	3.46	4.24	4.90	6.00	7.75	9.17	11.0	15.5	—	1.7	—		
	80	○	○							○	○	○	○	43	50	55	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	—	2.0	—		
	120	○	○							○	○	○	○	44	50	54	4.90	6.93	8.49	9.80	12.0	15.5	18.3	21.9	31.0	550	2.5	—		
	200	○	○							○	○	○	○	45	50	53	8.16	11.5	14.1	16.3	20.0	25.8	30.6	36.5	51.6	640	3.3	—		
	300	○	○	○						○	○	○	○	45	50	53	12.2	17.3	21.2	24.5	30.0	38.7	45.8	54.8	77.5	—	4.2	—		
	400	○	○	○	○					○	○	○	○	46	50	52	16.3	23.1	28.3	32.7	40.0	51.6	61.1	73.0	103	—	4.9	—		
	500	○	○	○	○	○				○	○	○	○	46	50	52	20.4	28.9	35.4	40.8	50.0	64.6	76.4	91.3	129	—	5.6	—		
	600	○	○	○	○	○	○			○	○	○	○	47	50	52	24.5	34.6	42.4	49.0	60.0	77.5	91.7	110	155	750	6.1	—		
800	○	○	○	○	○	○	○		○	○	○	○	47	50	51	32.7	46.2	56.5	65.3	80.0	103	122	146	206	—	7.1	—			
1000	○	○	○	○	○	○	○	○		○	○	○	47	50	51	40.8	57.7	70.7	81.7	100	129	153	183	258	1,000	7.9	—			
1500	○	○	○	○	○	○	○	○	○		○	○	48	50	51	61.2	86.6	106	122	150	194	229	274	387	1,100	9.7	—			
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	—		
	300	○	○											36	40	42	12.2	17.3	21.2	24.5	30.0	38.7	45.8	54.8	77.5	800	4.5	—		
	400	○	○											36	40	42	16.3	23.1	28.3	32.7	40.0	51.6	61.1	73.0	103	—	5.3	—		
	500	○	○											37	40	42	20.4	28.9	35.4	40.8	50.0	64.6	76.4	91.3	129	850	5.8	—		
600	○	○											37	40	42	24.5	34.6	42.4	49.0	60.0	77.5	91.7	1							

One-piece Structure Standard Flat Spray Nozzles

VVP/VP SERIES

Flat Spray

VVP (S316L-IN) SERIES

Precision-manufactured stainless steel VVP nozzle with low flow rate.

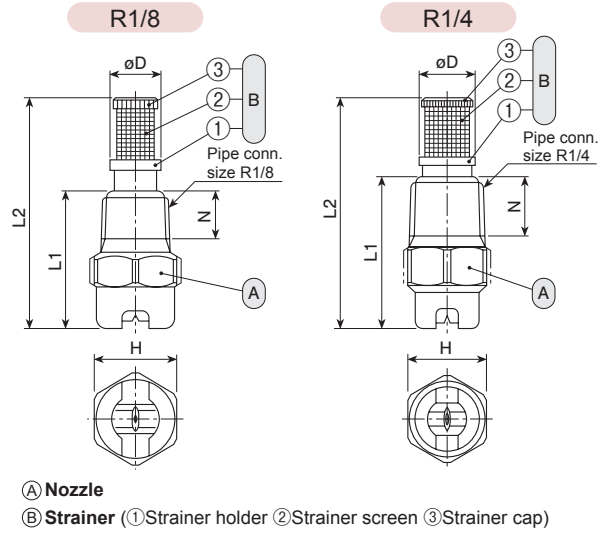
Structure	<ul style="list-style-type: none"> Made of metal. Available with or without a strainer.
Material	<ul style="list-style-type: none"> S316L equivalent Strainer: S303 or S316

Pipe conn. size	Dimensions (mm)					Weight ² (g)
	L1	L2	H	øD	N	
R1/8	20	33.5	12	7.5	7	9.6
R1/4	27	41	14	10	10.5	16

*2) With strainer, add 2g for R1/8 and 5g for R1/4 to the above weight.

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

DRAWING



VVP (S316L-IN) Series, precision stainless steel nozzle with low flow rate

Spray angle code	Spray capacity code	Pipe connection size		Spray angle (°)			Spray capacity (L/min)									Mean drop. dia. (µm)	Free pass. dia. (mm)	Strainer mesh size
		R1/8	R1/4	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	—	—	0.21	0.24	0.30	0.39	0.46	0.55	0.77	140	0.2	200
	04	●	●	102	115	124	—	—	0.28	0.33	0.40	0.52	0.61	0.73	1.03	0.2	200	
	05	●	●	102	115	124	—	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	0.3	150	
	07	●	●	103	115	124	—	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	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	270	0.4	150
90	03	●	●	76	90	100	—	—	0.21	0.24	0.30	0.39	0.46	0.55	0.77	150	0.2	200
	04	●	●	77	90	100	—	—	0.28	0.33	0.40	0.52	0.61	0.73	1.03	0.3	150	
	05	●	●	77	90	100	—	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	0.3	150	
	07	●	●	78	90	100	—	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	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	280	0.5	100
80	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	290	0.5	100
65	03	●	●	52	65	75	—	—	0.21	0.24	0.30	0.39	0.46	0.55	0.77	160	0.3	150
	04	●	●	52	65	75	—	—	0.28	0.33	0.40	0.52	0.61	0.73	1.03	0.3	150	
	05	●	●	52	65	74	—	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	0.4	150	
	07	●	●	53	65	74	—	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	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	310	0.6	100
50	03	●	●	37	50	63	—	—	0.21	0.24	0.30	0.39	0.46	0.55	0.77	180	0.3	150

●: Available with or without strainer

HOW TO ORDER

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

VVP

VP

Example: 1/4M VVP 11515 S303W

1/4M	VVP	115	15	S303	W
Pipe conn. size ⁴	Series	Spray angle code	Spray capacity code	Material ⁵	Strainer
1/8M ∫ 1M	VVP VP	115 ∫ 15	02 ∫ 1500	S303 B TPVDF PVDF PP-IN	W (with strainer) (Blank indicates "without strainer")

The VVP series with thread size R1/2 and larger are made-to-order.

VVP (S316L-IN)

Example: 1/4M VVP 6507 S316L-IN + WS303

1/4M	VVP	65	07	S316L-IN +	W	S303
Pipe conn. size ⁴	Series	Spray angle code	Spray capacity code	Nozzle material	Strainer	Strainer material
1/8M ∫ 1/4M	VVP VP	115 ∫ 50	03 04 ∫ 05 07 10	S316L-IN	W (with strainer) (Blank indicates "without strainer")	S303 S316

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

*5) TPVDF and B are only for the VP series. PVDF and PP-IN are only for the VVP series.