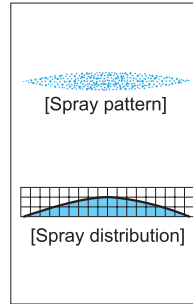


# One-piece Structure Standard Flat Spray Nozzles

## VVP/VP

Flat Spray



### [Features]

- Flat spray pattern with a mountain-shaped spray distribution having gradually tapered edges.
- Tapered edges overlap to provide uniformity of spray distribution in multiple-nozzle arrangements.

### [Standard pressure]

0.3 MPa

### [Applications]

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

## VVP series

VVP series	
Structure	<ul style="list-style-type: none"> <li>• Made of metal or plastic, one-piece structure.</li> <li>• Small spray capacity models of metal VVP come with or without a strainer.</li> </ul>
Material	<ul style="list-style-type: none"> <li>• S303, B (brass), or PP</li> <li>• S316L equivalent (precision-molded stainless steel)<sup>3</sup></li> <li>• Strainer for precision-molded stainless steel: S303 or S316</li> <li>• Optional material: S316, PVC, PVDF, Ultrahigh molecular weight polyethylene, or others</li> </ul>

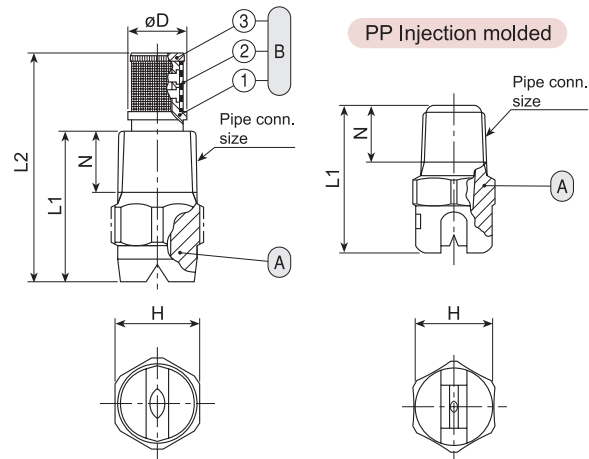
Series	Pipe conn. size	Dimensions (mm)					Mass (g) <sup>1</sup>			
		L1	L2	H	øD	N	S303	B	S316L equiv.	PP
VVP <sup>2</sup>	R1/8	18.5	31	12	7.5	6.5	10	11	—	—
	R1/4	25	40	14	10	10.5	21	23	—	—
	R3/8	30	—	19	—	10.5	37	40	—	—
	R1/2	38	—	23	—	14	65	70	—	—
	R3/4	45	—	29	—	15	110	120	—	—
	R1	55	—	35	—	18	170	180	—	—
VVP <sup>3</sup> (Precision-molded stainless steel)	R1/8	20	33.5	12	7.5	7	—	—	9.6	—
	R1/4	27	41	14	10	10.5	—	—	16	—
VVP-PP (Injection molded)	R1/8	22	—	12	—	8.5	—	—	—	1.1
	R1/4	27	—	14	—	11.5	—	—	—	2.2

\*1) When with a strainer, add 2–5 g to the above mass.

\*2) VVP with spray capacity code of 20 or smaller slightly differs in dimensions (L1, L2) and in shape of nozzle tip from the above. Contact us for details.

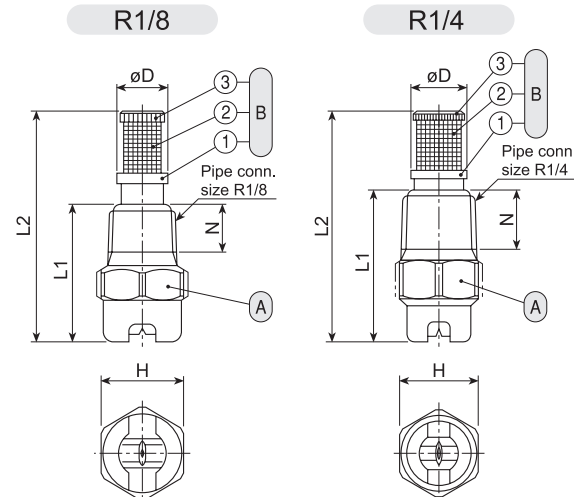
\*3) Please see the chart on page 20 for availability.

[Note] Appearance and dimensions may differ slightly depending on materials and nozzle codes.



- Ⓐ Nozzle  
 Ⓑ Strainer (① Strainer holder ② Strainer screen [S316] ③ Strainer cap)

### Precision-molded stainless steel



- Ⓐ Nozzle  
 Ⓑ Strainer (① Strainer holder ② Strainer screen [S316] ③ Strainer cap)

VP series

VP series (with ceramic orifice inserted)									
Structure	<ul style="list-style-type: none"> <li>Ceramic orifice is inserted and adhered into a metal or plastic body.</li> <li>Small spray capacity models of metal VP come with or without a strainer.</li> <li>CERTIIM® is a plastic spray nozzle with a one-shot injection molded ceramic orifice.</li> </ul>								
Material	<ul style="list-style-type: none"> <li>Nozzle orifice: ceramic</li> <li>Metal parts: S303 or B (brass)</li> <li>CERTIIM®'s plastic body: PVDF</li> <li>Optional material: S316 or others</li> </ul>								
Body material	Pipe conn. size	Dimensions (mm)					Mass (g) <sup>*1</sup>		
		L1	L2	H	øD	N	S303	B	CERTIIM®
Metal	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

VP series (with ceramic orifice inserted)

CERTIIM®

**A** Nozzle (①Ceramic orifice ②Adhesive: Araldite® ③Nozzle body)  
**B** Strainer (④Strainer holder ⑤Strainer screen [S316] ⑥Strainer cap)

[Note] Appearance and dimensions may differ slightly depending on materials and nozzle codes.

VVP series, VP series

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					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	R1/8	R1/4																
		R1/8	R1/4	R3/8	R1/2																						R3/4
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	160	0.3	150
	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	160	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	270	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	—
	230	○	○	○									109	115	119	9.39	13.3	16.3	18.8	23.0	29.7	35.1	42.0	59.4	510	2.7	—
	260	○	○	○	○								109	115	119	10.6	15.0	18.4	21.2	26.0	33.6	39.7	47.5	67.1	510	2.8	—
300	○	○	○	○	○							109	115	119	12.2	17.3	21.2	24.5	30.0	38.7	45.8	54.8	77.5	510	3.0	—	
400	○	○	○	○	○	○						110	115	118	16.3	23.1	28.3	32.7	40.0	51.6	61.1	73.0	103	580	3.5	—	
500	○	○	○	○	○	○	○					110	115	118	20.4	28.9	35.4	40.8	50.0	64.6	76.4	91.3	129	580	3.9	—	
600	○	○	○	○	○	○	○	○				111	115	118	24.5	34.6	42.4	49.0	60.0	77.5	91.7	110	155	610	4.3	—	
800	○	○	○	○	○	○	○	○	○			111	115	117	32.7	46.2	56.5	65.3	80.0	103	122	146	206	700	5.0	—	
1000	○	○	○	○	○	○	○	○	○	○		111	115	117	40.8	57.7	70.7	81.7	100	129	153	183	258	700	5.6	—	
1500	○	○	○	○	○	○	○	○	○	○	○	111	115	117	61.2	86.6	106	122	150	194	229	274	387	900	7.2	—	
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	270	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	270	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	280	1.1	—
	50	○	○										81	90	97	2.04	2.89	3.54	4.08	5.00	6.46	7.64	9.13	12.9	280	1.2	—
	60	○	○										82	90	96	2.45	3.46	4.24	4.90	6.00	7.75	9.17	11.0	15.5	280	1.3	—
	80	○	○										82	90	96	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	280	1.5	—
	100	○	○										82	90	96	4.08	5.77	7.07	8.17	10.0	12.9	15.3	18.3	25.8	280	1.7	—
	120	○	○										83	90	95	4.90	6.93	8.49	9.80	12.0	15.5	18.3	21.9	31.0	280	2.0	—
140	○	○										83	90	95	5.72	8.08	9.90	11.4	14.0	18.1	21.4	25.6	36.1	280	2.2	—	
170	○	○										83	90	95	6.94	9.82	12.0	13.9	17.0	22.0	26.0	31.1	43.9	280	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	—	
230	○	○										84	90	94	9.39	13.3	16.3	18.8	23.0	29.7	35.1	42.0	59.4	540	2.8	—	
260	○	○										84	90	94	10.6	15.0	18.4	21.2	26.0	33.6	39.7	47.5	67.1	540	3.1	—	
300	○	○										84	90	94	12.2	17.3	21.2	24.5	30.0	38.7	45.8	54.8	77.5	540	3.4	—	
400	○	○										85	90	94	16.3	23.1	28.3	32.7	40.0	51.6	61.1	73.0	103	580	3.8	—	
500	○	○										85	90	93	20.4	28.9	35.4	40.8	50.0	64.6	76.4	91.3	129	580	4.2	—	
600	○	○										86	90	93	24.5	34.6	42.4	49.0	60.0	77.5	91.7	110	155	610	4.7	—	
800	○	○										86	90	93	32.7	46.2	56.5	65.3	80.0	103	122	146	206	700	5.4	—	
900	○	○										86	90	92	36.7	52.0	63.6	73.5	90.0	116	137	164	232	750	5.7	—	
1000	○	○										86	90	92	40.8	57.7	70.7	81.7	100	129	153	183	258	750	6.0	—	
1200	○	○										86	90	92	49.0	69.3	84.9	98.0	120	155	183	219	310	900	6.6	—	
1500	○	○										86	90	92	61.2	86.6	106	122	150	194	229	274	387	950	7.2	—	

● : Available with/without strainer ○ : Available without strainer [Dotted box] : Precision-molded stainless steel type available (see page 20)

# One-piece Structure Standard Flat Spray Nozzles

## VVP/VP series

Flat Spray

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						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 <sub>6</sub>																		
		R1/8	R1/4	R3/8	R1/2	R3/4	R1	R1/8	R1/4	R1/8	R1/4	R1/8	R1/4															
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	0.55	0.77	160	0.3	150	
	04								●	●	○	○	67	80	90	—	0.23	0.28	0.33	0.40	0.52	0.61	0.73	1.03	190	0.4	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	180	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	290	1.2	—
	50									○	○	○	○	71	80	86	2.04	2.89	3.54	4.08	5.00	6.46	7.64	9.13	12.9	290	1.4	—
	60									○	○	○	○	72	80	86	2.45	3.46	4.24	4.90	6.00	7.75	9.17	11.0	15.5	290	1.5	—
	80	○	○							○	○	○	○	72	80	86	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	290	1.7	—
	100	○	○							○	○	○	○	72	80	85	4.08	5.77	7.07	8.17	10.0	12.9	15.3	18.3	25.8	290	1.8	—
	120	○	○							○	○	○	○	73	80	85	4.90	6.93	8.49	9.80	12.0	15.5	18.3	21.9	31.0	290	2.1	—
	200									○	○	○	○	74	80	85	8.16	11.5	14.1	16.3	20.0	25.8	30.6	36.5	51.6	550	2.9	—
	300									○	○	○	○	74	80	84	12.2	17.3	21.2	24.5	30.0	38.7	45.8	54.8	77.5	570	3.7	—
	400									○	○	○	○	75	80	83	16.3	23.1	28.3	32.7	40.0	51.6	61.1	73.0	103	600	4.1	—
500									○	○	○	○	75	80	83	20.4	28.9	35.4	40.8	50.0	64.6	76.4	91.3	129	600	4.8	—	
600									○	○	○	○	76	80	83	24.5	34.6	42.4	49.0	60.0	77.5	91.7	110	155	600	5.1	—	
800									○	○	○	○	76	80	82	32.7	46.2	56.5	65.3	80.0	103	122	146	206	600	6.1	—	
1000									○	○	○	○	76	80	82	40.8	57.7	70.7	81.7	100	129	153	183	258	600	6.2	—	
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	0.4	150	
	05								○	○	○	○	52	65	74	—	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	180	0.3	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	310	1.3	—
	50	○	○							○	○	○	○	57	65	71	2.04	2.89	3.54	4.08	5.00	6.46	7.64	9.13	12.9	310	1.5	—
	60	○	○							○	○	○	○	57	65	71	2.45	3.46	4.24	4.90	6.00	7.75	9.17	11.0	15.5	310	1.6	—
	80	○	○							○	○	○	○	58	65	71	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	310	1.9	—
	100	○	○							○	○	○	○	58	65	70	4.08	5.77	7.07	8.17	10.0	12.9	15.3	18.3	25.8	310	2.1	—
	120	○	○							○	○	○	○	58	65	70	4.90	6.93	8.49	9.80	12.0	15.5	18.3	21.9	31.0	310	2.3	—
	140									○	○	○	○	59	65	69	5.72	8.08	9.90	11.4	14.0	18.1	21.4	25.6	36.1	310	2.5	—
	170									○	○	○	○	59	65	69	6.94	9.82	12.0	13.9	17.0	22.0	26.0	31.1	43.9	310	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	650	4.7	—	
500									○	○	○	○	61	65	67	20.4	28.9	35.4	40.8	50.0	64.6	76.4	91.3	129	650	5.3	—	
600									○	○	○	○	61	65	67	24.5	34.6	42.4	49.0	60.0	77.5	91.7	110	155	650	5.7	—	
800									○	○	○	○	62	65	67	32.7	46.2	56.5	65.3	80.0	103	122	146	206	650	6.5	—	
1000									○	○	○	○	62	65	66	40.8	57.7	70.7	81.7	100	129	153	183	258	650	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	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	1.94	2.29	2.74	3.87	210	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	210	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	340	1.4	—
	50									○	○	○	○	43	50	55	2.04	2.89	3.54	4.08	5.00	6.46	7.64	9.13	12.9	340	1.6	—
	60									○	○	○	○	43	50	55	2.45	3.46	4.24	4.90	6.00	7.75	9.17	11.0	15.5	340	1.7	—
	80	○	○							○	○	○	○	43	50	55	3.27	4.62	5.66	6.53	8.00	10.3	12.2	14.6	20.6	340	2.0	—
	120	○	○							○	○	○	○	44	50	54	4.90	6.93	8.49	9.80	12.0							

