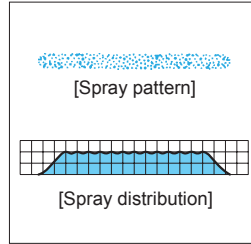


Even Flat Spray Nozzles

VEP/VE

Flat Spray



- Flat spray pattern with uniform distribution across the pattern area.
- Even spray impact across the entire spray area.

[STANDARD PRESSURE]
0.3 MPa

[APPLICATIONS]

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

VEP SERIES (one-piece structure)

Structure	<ul style="list-style-type: none"> • One-piece structure with a ceramic orifice insert. • Small spray capacity VEP 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>

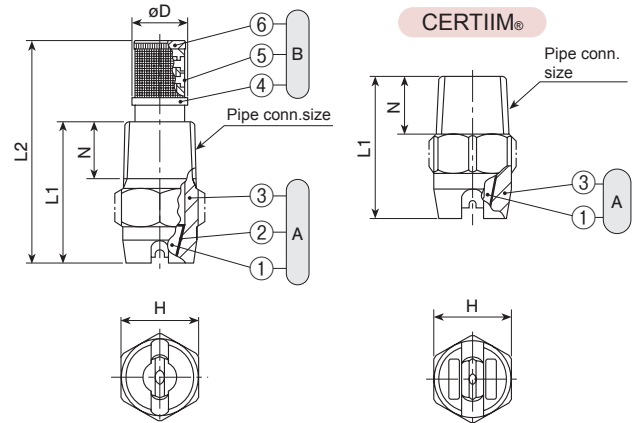
Pipe conn. size	Dimensions (mm)					Weight (g)		
	L1	L2	H	øD	N	S303 ^{*1}	B ^{*1}	CERTIIM
R1/8	16.5	30	12	7.5	6.5	8	9	—
R1/4	26	40	14	10	10.5	20	22	—
R3/8	30	—	19	—	11	33	—	—
R1/2	38	—	23	—	14	57	—	—
CERTIIM R1/8	22	—	12	—	8.5	—	—	2.1
CERTIIM R1/4	26	—	14	—	10.5	—	—	6

*1) With strainer, add 2g for R1/8 and 5g for R1/4 to the above weight. No strainers for CERTIIM (VEP-TPVDF).

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

DRAWING

Unit: mm



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

VE SERIES (three-piece structure)

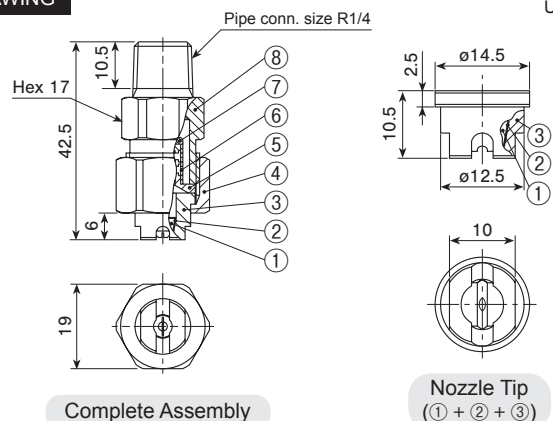
Structure	<ul style="list-style-type: none"> • Three-piece structure with a ceramic orifice insert. • Includes three parts: Nozzle tip, cap, and adaptor. • Worn-out nozzle tips can be replaced separately. • Small spray capacity models come with or without a strainer.
Material	<ul style="list-style-type: none"> • Nozzle orifice: ceramic • Tip retainer: S303 • Cap, Adaptor, and Strainer: S303 <p>SPECIAL ORDER MATERIAL: S316 or others</p>
Weight	<ul style="list-style-type: none"> • Complete assembly^{*2}: 43 g • Nozzle tip: 6.5 g

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

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

DRAWING

Unit: mm



- Nozzle** (①Ceramic orifice ②Adhesive: Araldite® ③Tip retainer)
Strainer (⑤Strainer holder ⑥Strainer screen [S316] ⑦Strainer cap)

Even Flat Spray Nozzles
VEP/VE 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						
		VEP						VE	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	3 MPa ³	5 MPa ³			
		Metal				CERTIIM																						
		R1/8	R1/4	R3/8	R1/2	R1/8	R1/4																			R1/4		
115	19	●					○	●	104	115	122	0.78	1.10	1.34	1.55	1.90	2.45	2.90	3.47	4.91	6.00	7.76	240	0.5	100			
	23	●					○	●	105	115	122	0.94	1.33	1.63	1.88	2.30	2.97	3.51	4.20	5.94	7.27	9.39				0.6	100	
	31	●						○	105	115	122	1.26	1.79	2.19	2.53	3.10	4.00	4.74	5.66	8.00	9.80	12.7				0.6	100	
	36	●						○	105	115	122	1.47	2.08	2.55	2.94	3.60	4.65	5.50	6.57	9.30	11.4	14.6				0.7	50	
	39	●						○	105	115	122	1.59	2.25	2.76	3.18	3.90	5.03	5.96	7.12	10.1	12.3	15.9				}	0.7	50
	59	●						○	105	115	122	2.40	3.41	4.17	4.82	5.90	7.62	9.01	10.8	15.2	18.6	24.1						
	78	○						○	106	115	121	3.18	4.50	5.52	6.37	7.80	10.1	11.9	14.2	20.1	24.7	31.8				1.0	—	
	117	○						○	106	115	120	4.78	6.75	8.27	9.55	11.7	15.1	17.8	21.4	30.2	37.0	47.8				1.2	—	
	157	○						○	106	115	120	6.41	9.06	11.1	12.8	15.7	20.3	24.0	28.0	40.5	49.6	64.1				1.4	—	
	196		○					○	108	115	120	8.00	11.3	13.9	16.0	19.6	25.3	30.0	35.8	50.6	62.0	80.0				450	1.6	—
	235		○					○	108	115	118	9.54	13.6	16.6	19.2	23.5	30.3	35.9	42.9	60.7	74.3	95.9						
	274		○					○	108	115	118	11.2	15.8	19.4	22.4	27.4	35.4	41.9	50.0	70.7	86.6	112				}	1.9	—
	314			○				○	108	115	118	12.8	18.1	22.2	25.6	31.4	40.5	48.0	57.3	81.1	99.3	128						
	392			○				○	108	115	118	16.0	22.6	27.7	32.0	39.2	50.6	60.0	71.6	101	124	160				}	2.2	—
469			○				○	108	115	118	19.1	27.0	33.2	38.4	46.9	60.7	71.8	85.6	121	149	192	640	2.4	—				
90	03	●	●				○	●	78	90	101	—	0.17	0.21	0.24	0.30	0.39	0.46	0.55	0.77	0.95	1.22	140	0.2	200			
	04	●	●				○	●	79	90	101	—	0.23	0.28	0.33	0.40	0.52	0.61	0.73	1.03	1.26	1.63				0.2	200	
	05	●	●				○	●	79	90	101	—	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	1.58	2.04				0.3	150	
	07	●	●				○	●	80	90	101	—	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	2.21	2.86				}	0.3	150
	10	●	●				○	●	80	90	100	0.41	0.58	0.71	0.82	1.00	1.29	1.53	1.83	2.58	3.16	4.08						
	15	●	●				○	●	82	90	100	0.61	0.87	1.06	1.23	1.50	1.94	2.29	2.74	3.87	4.74	6.12				250	0.4	150
	19	●	●				○	●	82	90	98	0.78	1.10	1.34	1.55	1.90	2.45	2.90	3.47	4.91	6.00	7.76						
	23		○					○	82	90	98	0.94	1.33	1.63	1.88	2.30	2.97	3.51	4.20	5.94	7.27	9.39				0.7	50	
	31		○					○	83	90	97	1.26	1.79	2.19	2.53	3.10	4.00	4.74	5.66	8.00	9.80	12.7				0.9	50	
	36		○					○	83	90	97	1.47	2.08	2.55	2.94	3.60	4.65	5.50	6.57	9.30	11.4	14.6				1.0	—	
	39		○					○	83	90	97	1.59	2.25	2.76	3.18	3.90	5.03	5.96	7.12	10.1	12.3	15.9				1.0	—	
	59		○					○	83	90	97	2.40	3.41	4.17	4.82	5.90	7.62	9.01	10.8	15.2	18.6	24.1				}	1.2	—
	78		○					○	84	90	97	3.18	4.50	5.52	6.37	7.80	10.1	11.9	14.2	20.1	24.7	31.8						
	117		○					○	84	90	96	4.78	6.75	8.27	9.55	11.7	15.1	17.8	21.4	30.2	37.0	47.8				1.7	—	
	157		○					○	84	90	96	6.41	9.06	11.1	12.8	15.7	20.3	24.0	28.0	40.5	49.6	64.1				2.0	—	
	196			○				○	84	90	96	8.00	11.3	13.9	16.0	19.6	25.3	30.0	35.8	50.6	62.0	80.0				480	2.2	—
	235			○				○	85	90	95	9.54	13.6	16.6	19.2	23.5	30.3	35.9	42.9	60.7	74.3	95.9						
	274			○				○	85	90	95	11.2	15.8	19.4	22.4	27.4	35.4	41.9	50.0	70.7	86.6	112				}	2.6	—
314			○				○	85	90	94	12.8	18.1	22.2	25.6	31.4	40.5	48.0	57.3	81.1	99.3	128	540	2.8	—				
392			○				○	85	90	94	16.0	22.6	27.7	32.0	39.2	50.6	60.0	71.6	101	124	160	}	3.1	—				
469			○				○	85	90	94	19.1	27.0	33.2	38.4	46.9	60.7	71.8	85.6	121	149	192				680	3.4	—	
80	19	●					○	●	72	80	84	0.78	1.10	1.34	1.55	1.90	2.45	2.90	3.47	4.91	6.00	7.76	260	0.7	50			
	23	●					○	●	72	80	84	0.94	1.33	1.63	1.88	2.30	2.97	3.51	4.20	5.94	7.27	9.39				0.8	50	
	31	●						○	72	80	84	1.26	1.79	2.19	2.53	3.10	4.00	4.74	5.66	8.00	9.80	12.7				0.9	50	
	36	●						○	72	80	84	1.47	2.08	2.55	2.94	3.60	4.65	5.50	6.57	9.30	11.4	14.6				1.0	—	
	39	●						○	73	80	84	1.59	2.25	2.76	3.18	3.90	5.03	5.96	7.12	10.1	12.3	15.9				}	1.0	—
	59	●						○	74	80	84	2.40	3.41	4.17	4.82	5.90	7.62	9.01	10.8	15.2	18.6	24.1						
	78	○						○	74	80	84	3.18	4.50	5.52	6.37	7.80	10.1	11.9	14.2	20.1	24.7	31.8				1.6	—	
	117	○						○	75	80	84	4.78	6.75	8.27	9.55	11.7	15.1	17.8	21.4	30.2	37.0	47.8				1.9	—	
	157	○						○	76	80	84	6.41	9.06	11.1	12.8	15.7	20.3	24.0	28.0	40.5	49.6	64.1				2.4	—	
	196		○					○	76	80	83	8.00	11.3	13.9	16.0	19.6	25.3	30.0	35.8	50.6	62.0	80.0				490	2.6	—
	235		○					○	76	80	83	9.54	13.6	16.6	19.2	23.5	30.3	35.9	42.9	60.7	74.3	95.9						
	274		○					○	76	80	83	11.2	15.8	19.4	22.4	27.4	35.4	41.9	50.0	70.7	86.6	112				}	3.3	—
	314			○				○	76	80	83	12.8	18.1	22.2	25.6	31.4	40.5	48.0	57.3	81.1	99.3	128						
	392			○				○	76	80	83	16.0	22.6	27.7	32.0	39.2	50.6	60.0	71.6	101	124	160				}	3.7	—
469			○				○	76	80	83	19.1	27.0	33.2	38.4	46.9	60.7	71.8	85.6	121	149	192	700	4.3	—				
65	03	●	●				○	●	54	65	76	—	0.17	0.21	0.24	0.30	0.39	0.46	0.55	0.77	0.95	1.22	150	0.3	150			
	04	●	●				○	●	54	65	76	—	0.23	0.28	0.33	0.40	0.52	0.61	0.73	1.03	1.26	1.63				0.3	150	
	05	●	●				○	●	54	65	75	—	0.29	0.35	0.41	0.50	0.65	0.76	0.91	1.29	1.58	2.04				0.4	150	
	07	●	●				○	●	55	65	75	—	0.40	0.49	0.57	0.70	0.90	1.07	1.28	1.81	2.21	2.86				}	0.4	150
	10	●	●				○																					

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				
		VEP							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	3 MPa ³	5 MPa ³	
		Metal				CER-TIIM																				VE
		R1/8	R1/4	R3/8	R1/2	R1/8	R1/4	R1/4																		
50	19	●					○	●	43	50	56	0.78	1.10	1.34	1.55	1.90	2.45	2.90	3.47	4.91	6.00	7.76	300	0.9	50	
	31	○					○	○	43	50	55	1.26	1.79	2.19	2.53	3.10	4.00	4.74	5.66	8.00	9.80	12.7		1.2	—	
	39	○					○	○	43	50	55	1.59	2.25	2.76	3.18	3.90	5.03	5.96	7.12	10.1	12.3	15.9		1.4	—	
	59	○					○	○	43	50	55	2.40	3.41	4.17	4.82	5.90	7.62	9.01	10.8	15.2	18.6	24.1	?	1.5	—	
	78	○					○	○	43	50	55	3.18	4.50	5.52	6.37	7.80	10.1	11.9	14.2	20.1	24.7	31.8		2.0	—	
	117	○					○	○	43	50	54	4.78	6.75	8.27	9.55	11.7	15.1	17.8	21.4	30.2	37.0	47.8		2.4	—	
	157	○					○	○	43	50	54	6.41	9.06	11.1	12.8	15.7	20.3	24.0	28.0	40.5	49.6	64.1		2.9	—	
	196	○		○			○	○	43	50	53	8.00	11.3	13.9	16.0	19.6	25.3	30.0	35.8	50.6	62.0	80.0	570	3.3	—	
	235	○		○			○	○	43	50	53	9.54	13.6	16.6	19.2	23.5	30.3	35.9	42.9	60.7	74.3	95.9	?	3.7	—	
	274	○		○			○	○	43	50	53	11.2	15.8	19.4	22.4	27.4	35.4	41.9	50.0	70.7	86.6	112		4.0	—	
	314	○			○		○	○	44	50	52	12.8	18.1	22.2	25.6	31.4	40.5	48.0	57.3	81.1	99.3	128	650	4.4	—	
	392	○			○		○	○	44	50	52	16.0	22.6	27.7	32.0	39.2	50.6	60.0	71.6	101	124	160	?	4.7	—	
469	○			○		○	○	44	50	52	19.1	27.0	33.2	38.4	46.9	60.7	71.8	85.6	121	149	192	850	5.0	—		
40	23	○					○	○	31	40	46	0.94	1.33	1.63	1.88	2.30	2.97	3.51	4.20	5.94	7.27	9.39	350	1.1	—	
	36	○					○	○	32	40	45	1.47	2.08	2.55	2.94	3.60	4.65	5.50	6.57	9.30	11.4	14.6		1.4	—	
	59	○					○	○	32	40	45	2.40	3.41	4.17	4.82	5.90	7.62	9.01	10.8	15.2	18.6	24.1		1.8	—	
	78	○					○	○	33	40	45	3.18	4.50	5.52	6.37	7.80	10.1	11.9	14.2	20.1	24.7	31.8	?	2.1	—	
	117	○					○	○	33	40	44	4.78	6.75	8.27	9.55	11.7	15.1	17.8	21.4	30.2	37.0	47.8		2.6	—	
	157	○					○	○	33	40	44	6.41	9.06	11.1	12.8	15.7	20.3	24.0	28.0	40.5	49.6	64.1		3.0	—	
	196	○		○			○	○	33	40	43	8.00	11.3	13.9	16.0	19.6	25.3	30.0	35.8	50.6	62.0	80.0	630	3.6	—	
	235	○		○			○	○	33	40	43	9.54	13.6	16.6	19.2	23.5	30.3	35.9	42.9	60.7	74.3	95.9	?	3.7	—	
	274	○		○			○	○	33	40	43	11.2	15.8	19.4	22.4	27.4	35.4	41.9	50.0	70.7	86.6	112		4.1	—	
	314	○			○		○	○	33	40	43	12.8	18.1	22.2	25.6	31.4	40.5	48.0	57.3	81.1	99.3	128	720	4.3	—	
	392	○			○		○	○	33	40	43	16.0	22.6	27.7	32.0	39.2	50.6	60.0	71.6	101	124	160	?	4.8	—	
	469	○			○		○	○	34	40	43	19.1	27.0	33.2	38.4	46.9	60.7	71.8	85.6	121	149	192	900	5.5	—	
25	19	○					○	○	18	25	32	0.78	1.10	1.34	1.55	1.90	2.45	2.90	3.47	4.91	6.00	7.76	390	1.1	—	
	31	○					○	○	19	25	32	1.26	1.79	2.19	2.53	3.10	4.00	4.74	5.66	8.00	9.80	12.7		1.4	—	
	39	○					○	○	20	25	32	1.59	2.25	2.76	3.18	3.90	5.03	5.96	7.12	10.1	12.3	15.9		1.5	—	
	59	○					○	○	21	25	32	2.40	3.41	4.17	4.82	5.90	7.62	9.01	10.8	15.2	18.6	24.1	?	1.9	—	
	78	○					○	○	21	25	32	3.18	4.50	5.52	6.37	7.80	10.1	11.9	14.2	20.1	24.7	31.8		2.3	—	
	117	○					○	○	21	25	32	4.78	6.75	8.27	9.55	11.7	15.1	17.8	21.4	30.2	37.0	47.8		2.7	—	
	157	○					○	○	21	25	32	6.41	9.06	11.1	12.8	15.7	20.3	24.0	28.0	40.5	49.6	64.1		3.4	—	
	196	○		○			○	○	21	25	32	8.00	11.3	13.9	16.0	19.6	25.3	30.0	35.8	50.6	62.0	80.0	730	3.7	—	
	235	○		○			○	○	21	25	31	9.54	13.6	16.6	19.2	23.5	30.3	35.9	42.9	60.7	74.3	95.9	?	4.0	—	
	274	○		○			○	○	21	25	31	11.2	15.8	19.4	22.4	27.4	35.4	41.9	50.0	70.7	86.6	112		4.5	—	
	314	○			○		○	○	21	25	31	12.8	18.1	22.2	25.6	31.4	40.5	48.0	57.3	81.1	99.3	128	800	4.8	—	
	392	○			○		○	○	21	25	31	16.0	22.6	27.7	32.0	39.2	50.6	60.0	71.6	101	124	160	?	5.1	—	
469	○			○		○	○	21	25	31	19.1	27.0	33.2	38.4	46.9	60.7	71.8	85.6	121	149	192	1,050	5.5	—		
15	23	○					○	○	10	15	19	0.94	1.33	1.63	1.88	2.30	2.97	3.51	4.20	5.94	7.27	9.39	500	1.3	—	
	36	○					○	○	10	15	19	1.47	2.08	2.55	2.94	3.60	4.65	5.50	6.57	9.30	11.4	14.6		1.6	—	
	59	○					○	○	10	15	19	2.40	3.41	4.17	4.82	5.90	7.62	9.01	10.8	15.2	18.6	24.1		2.0	—	
	78	○					○	○	10	15	19	3.18	4.50	5.52	6.37	7.80	10.1	11.9	14.2	20.1	24.7	31.8	?	2.4	—	
	117	○					○	○	10	15	19	4.78	6.75	8.27	9.55	11.7	15.1	17.8	21.4	30.2	37.0	47.8		3.0	—	
	157	○					○	○	12	15	19	6.41	9.06	11.1	12.8	15.7	20.3	24.0	28.0	40.5	49.6	64.1		3.5	—	
	196	○		○			○	○	13	15	19	8.00	11.3	13.9	16.0	19.6	25.3	30.0	35.8	50.6	62.0	80.0	850	3.8	—	
	235	○		○			○	○	13	15	19	9.54	13.6	16.6	19.2	23.5	30.3	35.9	42.9	60.7	74.3	95.9	?	4.3	—	
	274	○		○			○	○	13	15	19	11.2	15.8	19.4	22.4	27.4	35.4	41.9	50.0	70.7	86.6	112		4.7	—	
	314	○			○		○	○	13	15	19	12.8	18.1	22.2	25.6	31.4	40.5	48.0	57.3	81.1	99.3	128	950	5.2	—	
	392	○			○		○	○	13	15	19	16.0	22.6	27.7	32.0	39.2	50.6	60.0	71.6	101	124	160	?	5.4	—	
	469	○			○		○	○	13	15	18	19.1	27.0	33.2	38.4	46.9	60.7	71.8	85.6	121	149	192	1,250	5.8	—	

●: Available with or without strainer ○: Only available without strainer *3) Use CERTIIM (VEP-TPVDF) only at pressures below 2.0 MPa.

HOW TO ORDER VEP SERIES

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

Example: 1/4M VEP 11519 S303W

1/4M	VEP	115	19	S303	W
Pipe conn. size ⁷⁾	Spray angle code	Spray capacity code ⁴⁾	Material ⁵⁾	Strainer ⁶⁾	
■ 1/8M ■ 1/4M ■ 3/8M ■ 1/2M	■ 115 ■ 5 ■ 15	■ 03 ■ 5 ■ 469	■ S303 ■ B ■ TPVDF	■ W (with strainer) ■ (Blank indicates "without strainer")	

*4) When spray capacity code is 03, 04, or 05, "AL99-" is indicated before the material code.

Example: 1/4M VEP 9003 AL99-S303W

*5) Brass body is available only in sizes R1/8 and R1/4.

*6) No strainers for VEP-TPVDF.

HOW TO ORDER VE SERIES

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

① Complete Assembly

Example: 1/4M VE 11519 S303W

1/4M	VE	115	19	S303	
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