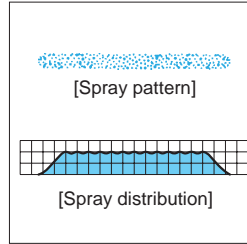


Even Flat Spray Nozzles

VE/VEP



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

[STANDARD PRESSURE]
0.3 MPa

[APPLICATIONS]

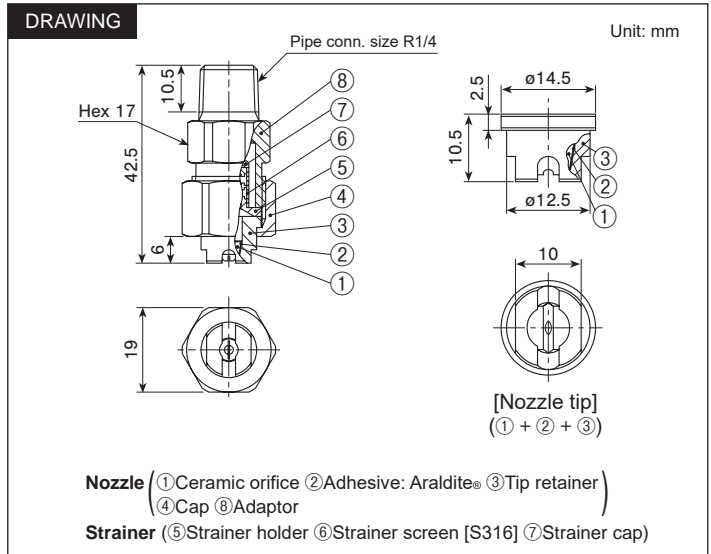
Cleaning: Automotives, containers, films, felts, filters, screens, bottles, crushed stone, earth and sand, metal parts, machines, steel plates, steel pieces, wires
 Spraying: Etchants, oils, lubricants, liquids, solutions, insecticides, herbicides
 Cooling: Gas, heat exchangers, tanks, steel, roofs
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

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*1: 49 g • Nozzle tip: 6.5 g

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

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



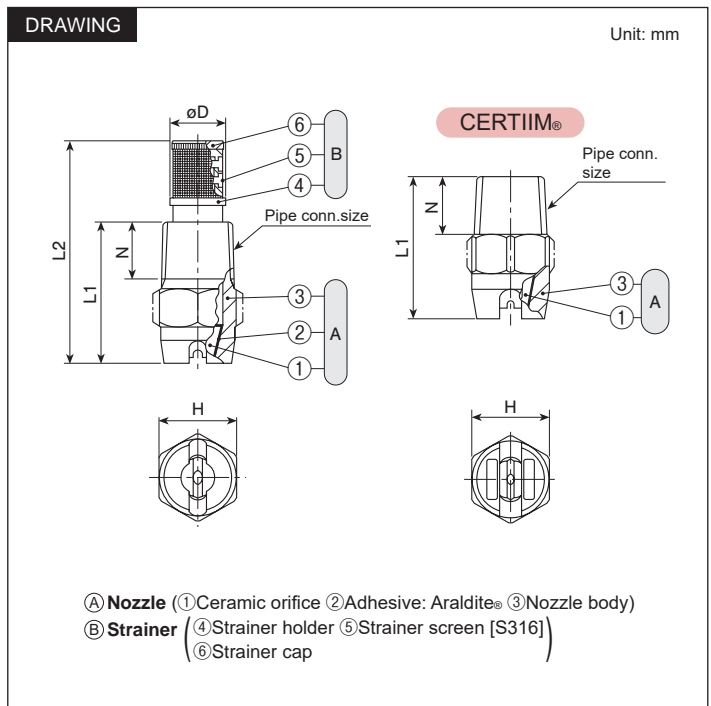
VEP SERIES (one-piece structure)

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 a strainer, add 2–5 g to the above weight.
 No strainers for CERTIIM® (VEP-TPVDF).

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



Even Flat Spray Nozzles VE/VEP 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								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 ²	5 MPa ²		
		Metal				CER-TIIM®																						
		R1/4	R1/8	R1/4	R3/8	R1/2	R1/8	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				0.9	50	
	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				1.7	—	
	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				510	2.0	—
	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				0.4	150	
	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				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				0.7	50	
	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				1.4	—	
	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	2.4	—					
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				1.3	—	
	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				3.1	—	
	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				560	3.3	—
	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	

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			
		VE		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 ²	5 MPa ²
		R1/4	R1/8	R1/4	R3/8	R1/2	CERTIIM® R1/8 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		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		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

*2) Use CERTIIM® (VEP-TPVDF) only at pressures below 2.0 MPa.

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	W
Pipe conn. size*		Spray angle code	Spray capacity code	Material	Strainer
█ 1/8M	█ 1/4M	█ 15	█ 03	█ W (with strainer)	█ (Blank indicates "without strainer")
█ 3/8M	█ 1/2M	█ 15	█ 157		

② Nozzle Tip Only

Example: 1/4 VE 11519 S303

1/4 VE	115	19	S303
	Spray angle code	Spray capacity code	Material
█ 115	█ 03	█ 15	█ 157

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*		Spray angle code	Spray capacity code ³⁾	Material ⁴⁾	Strainer ⁵⁾
█ 1/8M	█ 1/4M	█ 15	█ 03	█ S303	█ W (with strainer)
█ 3/8M	█ 1/2M	█ 15	█ 469	█ TPVDF	█ B (Blank indicates "without strainer")

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

Example: 1/4M VEP 9003AL99-S303W

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

*5) No strainers for VEP-TPVDF.