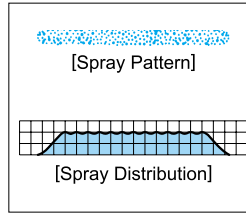


# Even Flat Spray Nozzles

# VE / VEP

Flat Spray



### [Features]

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

### [Standard Pressure]

0.3MPa

### [Applications]

**Cleaning** : Automotives, containers, films, felts, filters, screens, bottles, gravel, stones, sand, metal parts, machines, steel plates, steel pieces, wires, etc.

**Spraying** : Etchants, oils, lubricants, liquids, solutions, insecticides, herbicides, etc.

**Cooling** : Gases, smokes, heat exchangers, tanks, steels, roofs, etc.

**Water screen** : Fire protection, heat protection, dust suppression, deodorization, etc.

## VE-series

VE-series (3-piece structure)	
Structure	<ul style="list-style-type: none"> <li>• 3-piece structure with ceramic orifice inserted.</li> <li>• Comprises three parts : Spray tip, cap and adaptor.</li> <li>• Worn-out spray tip can be replaced separately.</li> <li>• Removable strainer is fitted and supplied as standard part with small capacity nozzle.</li> <li>• CERTIIM® is one-shot injection molded spray tip created by molding the precision-made ceramic orifice into a plastic retainer.</li> </ul>
Material	<ul style="list-style-type: none"> <li>• Spray orifice : ceramic</li> <li>• Metal Parts : B (brass) or S303 (stainless steel 303)</li> <li>• CERTIIM®'s plastic retainer : PVDF (polyvinylidene fluoride)</li> <li>• Optional material : S316 or others</li> </ul>

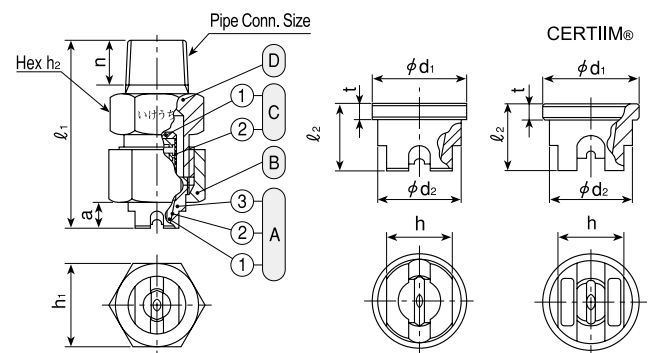
### [Complete nozzle]

Series	Pipe Conn. Size	Dimensions(mm)					Mass(g)	
		$l_1$	$h_1$	$h_2$	a	n	B	S303
VE	1/4M	42.5	19	17	6	10.5	53	49

\* For VE with strainer, add 2-5g to the above mass and 2mm to the above  $l_1$  length.

### [Spray tip]

Series	Pipe Conn. Size of Complete Nozzle	Dimensions(mm)					Mass(g)		
		$l_2$	$\phi d_1$	$\phi d_2$	h	t	B	S303	CERTIIM®
VE	1/4M	10.5	14.5	12.5	10	2.5	7	6.5	—
	CERTIIM® 1/4M	10.5	14.5	12.5	10	2.5	—	—	4



- (A) Spray tip (①Ceramic orifice ②Adhesive : Araldite® ③Retainer)  
 (B) Cap  
 (C) Strainer (①Strainer holder ②Strainer screen)  
 (D) Adaptor

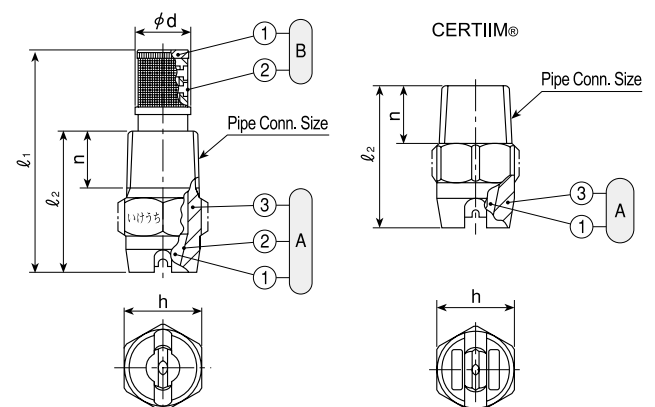
[Note] Appearance and dimensions may differ slightly depending on materials and nozzle codes.

## VEP-series

VEP-series (one-piece structure)	
Structure	<ul style="list-style-type: none"> <li>• Ceramic orifice inserted and adhered into metal or plastic body.</li> <li>• CERTIIM® is a plastic nozzle with a one-shot injection molded ceramic orifice.</li> </ul>
Material	<ul style="list-style-type: none"> <li>• Spray orifice : ceramic</li> <li>• Metal parts : B (brass) or S303 (stainless steel 303)</li> <li>• CERTIIM®'s plastic body : PVDF (polyvinylidene fluoride)</li> <li>• Optional material : S316 or others</li> </ul>

Series	Pipe Conn. Size	Dimensions(mm)					Mass(g)		
		$l_1$	$l_2$	h	n	$\phi d$	B	S303	CERTIIM®
VEP	1/8M	30	16.5	12	6.5	7.5	8.6	7.9	—
	1/4M	40	26	14	10.5	10	19	17	6
	3/8M	—	30	19	11	—	35	33	—
	1/2M	—	38	23	14	—	62	57	—
	CERTIIM® 1/8M	—	22	12	8.5	—	—	—	2.1
	CERTIIM® 1/4M	—	26	14	10.5	—	—	—	6

\* For VEP with strainer, add 2-5g to the above mass.



- (A) Nozzle (①Ceramic orifice ②Adhesive : Araldite® ③Body)  
 (B) Strainer (①Strainer holder ②Strainer screen)

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

Even Flat Spray Nozzles  
VE / VEP-series

Flat Spray

Spray Angle	Spray Capacity Code	VE		VEP				Spray Angle			Spray Capacity (ℓ/min)										Mean Drop. Dia. (μm)	Free Pass. Dia. (mm)	Strainer Mesh Size				
		1/4M	CER-TIME	1/4M	1/4M	3/8M	1/2M	CER-TIME	CER-TIME	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	5 MPa	
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	240	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	240	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	240	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	240	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	240	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	240	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	240	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	450	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	240	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	240	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	240	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	240	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	240	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	240	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	240	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	240	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	250	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	240	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	240	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	240	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	240	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	240	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	240	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	240	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	480	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	240	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	240	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	240	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	260	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	240	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	240	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	240	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	240	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	240	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	240	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	490	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	240	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	240	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	○	○																								

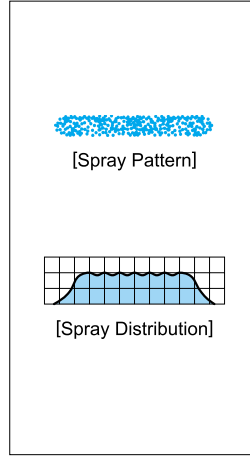




# High Pressure Cleaning Even Flat Spray Nozzles

# VNP

Flat Spray



### [Features]

- Flat spray pattern with uniform distribution throughout pattern area.
- Small 1/8" pipe connection size for high pressure cleaning.

### [Standard Pressure]

3MPa

### [Applications]

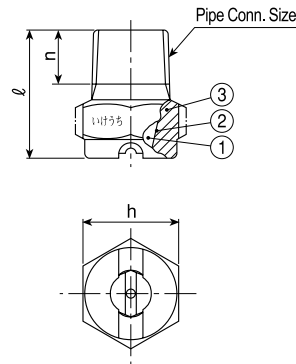
High pressure cleaning : Automotives, containers, tanks, wire cylinders, filter presses, other industrial cleaning and degreasing.

## VNP-series

VNP-series (with ceramic orifice inserted)	
Structure	• Ceramic orifice inserted and adhered into metal body.
Material	• Spray orifice : ceramic • Metal parts : B (brass) or S303 (stainless steel 303) • Optional material : S316

Series	Pipe Conn. Size	Dimensions(mm)			Mass(g)	
		ℓ	h	n	B	S303
VNP	1/8M	16.5	12	7	7.4	7

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



①Ceramic orifice ②Adhesive : Araldite® ③Body

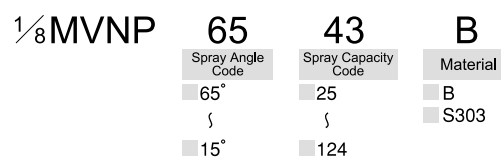
Spray Angle Code	Spray Capacity Code	Pipe Conn. Size	Spray Angle			Spray Capacity (ℓ/min)											Free Pass. Dia. (mm)	
			1 MPa	3 MPa	5 MPa	1 MPa	2 MPa	2.5 MPa	3 MPa	3.5 MPa	4 MPa	4.5 MPa	5 MPa	6.5 MPa	8 MPa	10 MPa		15 MPa
65°	43	1/8M	60°	65°	65°	2.50	3.54	3.96	4.33	4.68	5.00	5.30	5.59	6.37	7.06	7.91	9.67	0.7
	49		60°	65°	65°	2.86	4.04	4.52	4.94	5.34	5.71	6.06	6.38	7.28	8.07	9.04	11.1	0.8
	56		60°	65°	65°	3.22	4.54	5.08	5.56	6.01	6.42	6.81	7.18	8.19	9.08	10.2	12.4	0.9
	62		60°	65°	65°	3.57	5.05	5.65	6.18	6.68	7.14	7.57	7.98	9.10	10.1	11.3	13.8	0.9
	68		60°	65°	65°	3.93	5.55	6.21	6.80	7.35	7.85	8.33	8.79	10.0	11.1	12.4	15.2	1.0
	74		60°	65°	65°	4.29	6.06	6.78	7.42	8.01	8.56	9.09	9.58	10.9	12.1	13.6	16.6	1.0
	80		60°	65°	65°	4.65	6.56	7.35	8.04	8.68	9.28	9.85	10.4	11.8	13.1	14.7	18.0	1.0
	87		60°	65°	65°	5.00	7.07	7.91	8.66	9.35	10.0	10.6	11.2	12.8	14.1	15.8	19.4	1.1
	99		60°	65°	65°	5.72	8.08	9.04	9.89	10.7	11.4	12.1	12.8	14.6	16.2	18.1	22.1	1.1
124	60°	65°	65°	7.15	10.1	11.3	12.4	13.4	14.3	15.2	16.0	18.2	20.2	22.6	27.7	1.3		
40°	25	1/8M	35°	40°	40°	1.43	2.02	2.25	2.47	2.67	2.85	3.03	3.19	3.64	4.03	4.51	5.52	0.6
	31		35°	40°	40°	1.78	2.52	2.82	3.09	3.34	3.57	3.78	3.99	4.55	5.05	5.64	6.91	0.7
	37		35°	40°	40°	2.14	3.03	3.39	3.71	4.01	4.28	4.54	4.79	5.46	6.06	6.77	8.30	0.7
	43		35°	40°	40°	2.50	3.54	3.96	4.33	4.68	5.00	5.30	5.59	6.37	7.06	7.91	9.67	0.8
	49		35°	40°	40°	2.86	4.04	4.52	4.94	5.34	5.71	6.06	6.38	7.28	8.07	9.04	11.1	1.0
	56		35°	40°	40°	3.22	4.54	5.08	5.56	6.01	6.42	6.81	7.18	8.19	9.08	10.2	12.4	1.0
	62		35°	40°	40°	3.57	5.05	5.65	6.18	6.68	7.14	7.57	7.98	9.10	10.1	11.3	13.8	1.1
	68		35°	40°	40°	3.93	5.55	6.21	6.80	7.35	7.85	8.33	8.79	10.0	11.1	12.4	15.2	1.1
	74		35°	40°	40°	4.29	6.06	6.78	7.42	8.01	8.56	9.09	9.58	10.9	12.1	13.6	16.6	1.1
	80		35°	40°	40°	4.65	6.56	7.35	8.04	8.68	9.28	9.85	10.4	11.8	13.1	14.7	18.0	1.2
	87		35°	40°	40°	5.00	7.07	7.91	8.66	9.35	10.0	10.6	11.2	12.8	14.1	15.8	19.4	1.2
	99		35°	40°	40°	5.72	8.08	9.04	9.89	10.7	11.4	12.1	12.8	14.6	16.2	18.1	22.1	1.4
124	35°	40°	40°	7.15	10.1	11.3	12.4	13.4	14.3	15.2	16.0	18.2	20.2	22.6	27.7	1.5		
30°	25	1/8M	26°	30°	30°	1.43	2.02	2.25	2.47	2.67	2.85	3.03	3.19	3.64	4.03	4.51	5.52	0.6
	31		26°	30°	30°	1.78	2.52	2.82	3.09	3.34	3.57	3.78	3.99	4.55	5.05	5.64	6.91	0.7
	37		26°	30°	30°	2.14	3.03	3.39	3.71	4.01	4.28	4.54	4.79	5.46	6.06	6.77	8.30	0.8
	43		26°	30°	30°	2.50	3.54	3.96	4.33	4.68	5.00	5.30	5.59	6.37	7.06	7.91	9.67	0.9
	49		26°	30°	30°	2.86	4.04	4.52	4.94	5.34	5.71	6.06	6.38	7.28	8.07	9.04	11.1	1.0
	56		26°	30°	30°	3.22	4.54	5.08	5.56	6.01	6.42	6.81	7.18	8.19	9.08	10.2	12.4	1.1
	62		26°	30°	30°	3.57	5.05	5.65	6.18	6.68	7.14	7.57	7.98	9.10	10.1	11.3	13.8	1.1
	68		26°	30°	30°	3.93	5.55	6.21	6.80	7.35	7.85	8.33	8.79	10.0	11.1	12.4	15.2	1.1
	74		26°	30°	30°	4.29	6.06	6.78	7.42	8.01	8.56	9.09	9.58	10.9	12.1	13.6	16.6	1.2
	80		26°	30°	30°	4.65	6.56	7.35	8.04	8.68	9.28	9.85	10.4	11.8	13.1	14.7	18.0	1.3
	87		26°	30°	30°	5.00	7.07	7.91	8.66	9.35	10.0	10.6	11.2	12.8	14.1	15.8	19.4	1.3
	99		26°	30°	30°	5.72	8.08	9.04	9.89	10.7	11.4	12.1	12.8	14.6	16.2	18.1	22.1	1.5
	124		26°	30°	30°	7.15	10.1	11.3	12.4	13.4	14.3	15.2	16.0	18.2	20.2	22.6	27.7	1.7

Spray Angle Code	Spray Capacity Code	Pipe Conn. Size	Spray Angle			Spray Capacity (ℓ/min)												Free Pass. Dia. (mm)
			1 MPa	3 MPa	5 MPa	1 MPa	2 MPa	2.5 MPa	3 MPa	3.5 MPa	4 MPa	4.5 MPa	5 MPa	6.5 MPa	8 MPa	10 MPa	15 MPa	
25°	25	1/8M	22°	25°	25°	1.43	2.02	2.25	2.47	2.67	2.85	3.03	3.19	3.64	4.03	4.51	5.52	0.7
	31		22°	25°	25°	1.78	2.52	2.82	3.09	3.34	3.57	3.78	3.99	4.55	5.05	5.64	6.91	0.7
	37		22°	25°	25°	2.14	3.03	3.39	3.71	4.01	4.28	4.54	4.79	5.46	6.06	6.77	8.30	0.8
	43		22°	25°	25°	2.50	3.54	3.96	4.33	4.68	5.00	5.30	5.59	6.37	7.06	7.91	9.67	0.9
	49		22°	25°	25°	2.86	4.04	4.52	4.94	5.34	5.71	6.06	6.38	7.28	8.07	9.04	11.1	1.0
	56		22°	25°	25°	3.22	4.54	5.08	5.56	6.01	6.42	6.81	7.18	8.19	9.08	10.2	12.4	1.1
	62		22°	25°	25°	3.57	5.05	5.65	6.18	6.68	7.14	7.57	7.98	9.10	10.1	11.3	13.8	1.1
	68		22°	25°	25°	3.93	5.55	6.21	6.80	7.35	7.85	8.33	8.79	10.0	11.1	12.4	15.2	1.2
	74		22°	25°	25°	4.29	6.06	6.78	7.42	8.01	8.56	9.09	9.58	10.9	12.1	13.6	16.6	1.3
	80		22°	25°	25°	4.65	6.56	7.35	8.04	8.68	9.28	9.85	10.4	11.8	13.1	14.7	18.0	1.3
	87		22°	25°	25°	5.00	7.07	7.91	8.66	9.35	10.0	10.6	11.2	12.8	14.1	15.8	19.4	1.4
	99		22°	25°	25°	5.72	8.08	9.04	9.89	10.7	11.4	12.1	12.8	14.6	16.2	18.1	22.1	1.5
	124		22°	25°	25°	7.15	10.1	11.3	12.4	13.4	14.3	15.2	16.0	18.2	20.2	22.6	27.7	1.7
	15°		25	1/8M	12°	15°	15°	1.43	2.02	2.25	2.47	2.67	2.85	3.03	3.19	3.64	4.03	4.51
31		12°	15°		15°	1.78	2.52	2.82	3.09	3.34	3.57	3.78	3.99	4.55	5.05	5.64	6.91	0.8
37		12°	15°		15°	2.14	3.03	3.39	3.71	4.01	4.28	4.54	4.79	5.46	6.06	6.77	8.30	0.9
43		12°	15°		15°	2.50	3.54	3.96	4.33	4.68	5.00	5.30	5.59	6.37	7.06	7.91	9.67	1.0
49		12°	15°		15°	2.86	4.04	4.52	4.94	5.34	5.71	6.06	6.38	7.28	8.07	9.04	11.1	1.1
56		12°	15°		15°	3.22	4.54	5.08	5.56	6.01	6.42	6.81	7.18	8.19	9.08	10.2	12.4	1.1
62		12°	15°		15°	3.57	5.05	5.65	6.18	6.68	7.14	7.57	7.98	9.10	10.1	11.3	13.8	1.2
68		12°	15°		15°	3.93	5.55	6.21	6.80	7.35	7.85	8.33	8.79	10.0	11.1	12.4	15.2	1.3
74		12°	15°		15°	4.29	6.06	6.78	7.42	8.01	8.56	9.09	9.58	10.9	12.1	13.6	16.6	1.3
80		12°	15°		15°	4.65	6.56	7.35	8.04	8.68	9.28	9.85	10.4	11.8	13.1	14.7	18.0	1.4
87		12°	15°		15°	5.00	7.07	7.91	8.66	9.35	10.0	10.6	11.2	12.8	14.1	15.8	19.4	1.5
93		12°	15°		15°	5.36	7.58	8.48	9.28	10.0	10.7	11.4	12.0	13.7	15.2	17.0	20.8	1.5
99		12°	15°		15°	5.72	8.08	9.04	9.89	10.7	11.4	12.1	12.8	14.6	16.2	18.1	22.1	1.6
111		12°	15°		15°	6.43	9.09	10.2	11.1	12.0	12.9	13.6	14.4	16.4	18.2	20.3	24.9	1.6
124	12°	15°	15°	7.15	10.1	11.3	12.4	13.4	14.3	15.2	16.0	18.2	20.2	22.6	27.7	1.7		

How to order

Please inquire or order for a specific nozzle using this coding system.

〈Example〉...1/8MVNP6543B



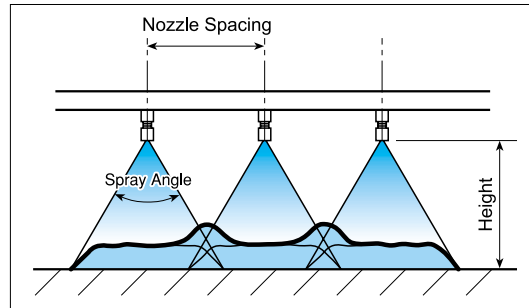
[Note] Color of ceramic orifice differs depending on nozzle codes.  
Brown colored orifice is indicated (Brown) after material code.

# For Effective Use of Even Flat Spray Nozzles

## Spray Distribution

Even flat spray nozzles are designed to produce an even spray distribution to even out the cleaning power in the spray width direction and are suitable for cleaning when using one nozzle.

When using even flat spray nozzles in multiple-nozzle arrangements, the overlapping spray distribution may be inferior to that of standard flat spray nozzles.



## Tightening Torque

For high-pressure cleaning, highly wear-resistant CERJET® nozzles with ceramic orifice inserted are most suitable. However, if screwed too tight, the nozzle body, especially small ones such as 1/8" size, may be damaged which results in cracking the ceramic orifice. Please apply the recommended torque. Tightening torque should not exceed the following.

For brass body.....1/8M ; 800N·cm, 1/4M ; 1500N·cm

For stainless steel body.....1/8M ; 800N·cm, 1/4M ; 1500N·cm

## Cleaning Force

The factors for showing cleaning efficiency of a nozzle are complex. To evaluate them, we use the spray impact and the amount of cavitation erosion. At a given liquid pressure, spray capacity and spray distance, the cleaning force of the solid stream jet nozzle is the strongest followed by the flat spray nozzles and the cone spray nozzles.

### [Spray Impact]

	Spray Impact ( $\times \frac{1}{100} \text{ N/cm}^2$ )	
	Max.	Average
1/8 MDSP15104	560	503
1/8 MVNP1580	460	390

■ Pressure : 5MPa  
■ Spray height : 150mm



### [Amount of Cavitation Erosion]

The amount of cavitation erosion is the depth of the depression on a sample piece dug out by flat spray nozzles.

Specifications	1/8 MDSP15104		1/8 MVNP1580	
Pressure (MPa)	5	7	5	7
Spray Angle (°)	16	16	16.5	17.0
Spray Capacity (ℓ/min)	9.9	11.7	10.1	12.0

