

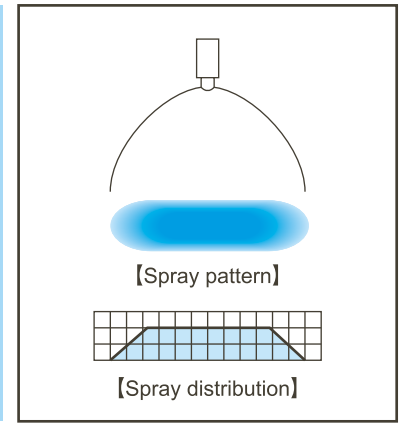
Ultra-Thick Flat Spray Semi-Fine, Semi-Coarse Fog Nozzles

DDA

Features

- Thick flat spray pneumatic nozzle producing a large volume of semi-fine atomization with a mean droplet diameter of 50 µm or more.*1
- Thicker flat spray pattern covers wider area.
- Large turn-down ratio with minimal variation in spray angle.
- Uniform spray droplet size distribution across the entire spray area.
- Uniform distribution suitable for multiple-nozzle arrangements.
- Large free passage diameter minimizes clogging.

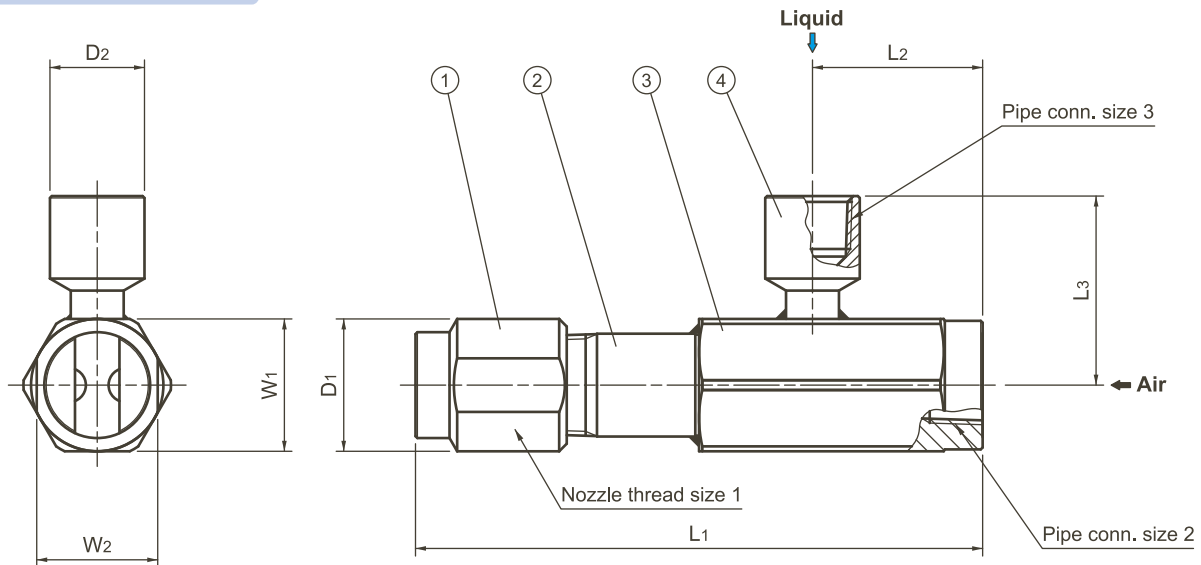
*1) Droplet diameter measured by the Fraunhofer diffraction method.
Please see pages 6–7 for comparison with laser Doppler method.



Applications

- Cooling: Steel plates, steel pieces, steel pipes, moldings

Structure & Materials



Components and materials

No.	Components	Standard materials
①	Nozzle body	S303
②	Pipe	S304
③	Mixing adaptor	S304
④	Liquid socket	S304

(Some DDA nozzles have no Pipe②, depending on the nozzle codes.)

Dimensions & Pipe Connection Sizes

Nozzle thread size 1	Pipe connection sizes 2 & 3*2	L1*3 (mm)	L2 (mm)	L3 (mm)	W1 (mm)	W2 (mm)	φD1 (mm)	φD2 (mm)	Mass*4 (g)
Rc1/8	Rc1/4	70	32.5	40	24	16	18	16	170
Rc1/4		70	32.5	40	24	16	18	16	180
Rc1/2	Rc1/2	130	40	50	27	25	28	25	450
Rc3/4		150	45	50	35	32	35	25	650

*2) Pipe connection sizes for air and liquid are the same.

*3) L1 shows the standard length, which is the shortest, and the longest length is 1,500 mm.

*4) Each mass shows DDA with standard length (L1). For longer lengths, add the corresponding mass (listed below) for each 100 mm of length.

Nozzle thread size 1	Mass per 100 mm
Rc1/8	50 g
Rc1/4	80 g
Rc1/2	160 g
Rc3/4	220 g

Spray angle code		Spray capacity code	Nozzle thread size 1	Pipe conn. size 2,3	Air press. (MPa)	Spray capacity (ℓ/min) & Air consumption (ℓ/min, Normal)										Mean droplet diameter (μm)		Free passage diameter (mm)		
Width	Thick-ness					Liquid pressure (MPa)										Immersion sampling method	Fraunhofer diffraction method	Spray orifice	Adaptor	
						0.07		0.1		0.2		0.4		0.7					Liquid	Air
		Liquid	Air	Liquid	Air	Liquid	Air	Liquid	Air	Liquid	Air	Liquid	Air			Liquid	Air			
125	20	70	Rc 1/4	Rc 1/4	0.1	1.51	29	2.22	24	—	—	—	—	—	—	200–300	100–150	2.4	2.2	1.5
					0.2	1.39	47	2.02	47	3.18	45	5.13	33	7.07	18					
					0.3	1.29	63	1.84	63	2.92	63	4.77	55	6.66	41					
					0.4	1.19	79	1.70	79	2.70	79	4.42	77	6.29	64					
110	25	36	Rc 1/4	Rc 1/4	0.1	0.87	34	1.20	34	1.87	31	—	—	—	200–300	100–150	2.0	1.7	1.5	
					0.2	0.75	50	1.10	50	1.76	49	2.80	44	3.70						36
					0.3	0.63	66	1.00	66	1.66	66	2.64	64	3.64						57
					0.4	0.50	82	0.90	82	1.55	82	2.50	82	3.60						76
	20	50	Rc 1/4	Rc 1/4	0.1	1.20	46	1.62	46	2.72	41	—	—	—	200–300	100–150	2.4	2.0	1.8	
					0.2	1.00	69	1.47	69	2.45	65	3.86	55	5.13						43
					0.3	0.80	92	1.28	92	2.17	91	2.56	85	5.04						72
					0.4	0.60	114	1.10	114	1.93	114	3.30	111	4.86						99
100	45	470	Rc 3/4	Rc 1/2	0.1	8.79	220	15.6	170	—	—	—	—	—	120–350	60–175	6.0	5.8	4.1	
					0.2	5.86	370	12.2	330	20.2	280	—	—	—						—
					0.3	3.45	490	9.66	480	15.5	443	32.1	285	—						—
					0.4	1.21	610	7.07	610	12.9	587	20.7	491	46.3						240
	45	580	Rc 3/4	Rc 1/2	0.1	12.6	278	18.8	213	—	—	—	—	—	140–400	70–200	7.0	6.5	4.7	
					0.2	6.87	500	12.2	462	24.2	336	—	—	—						—
					0.3	—	—	—	—	17.9	550	38.9	325	—						—
					0.4	—	—	—	—	—	—	32.5	535	57.3						190
15	25	Rc 1/8	Rc 1/4	0.1	—	—	—	—	—	—	—	—	—	30–200	15–100	2.0	1.9	1.8		
				0.2	—	—	—	—	1.05	37	—	—	—						—	
				0.3	—	—	—	—	0.34	87	2.20	24	—						—	
				0.4	—	—	—	—	—	—	1.30	75	—						—	
80	20	14	Rc 1/4	Rc 1/4	0.1	0.36	19	0.50	19	0.71	19	1.11	18	1.40	17	70–150	35–75	2.0	1.1	1.2
					0.2	0.29	29	0.46	29	0.68	29	1.10	28	1.41	27					
					0.3	0.22	39	0.41	39	0.65	39	1.08	39	1.42	37					
					0.4	0.14	49	0.37	49	0.62	49	1.06	49	1.43	48					
	20	37	Rc 1/4	Rc 1/4	0.1	0.93	33	1.35	32	2.02	30	3.01	24	3.74	17	200–300	100–150	2.8	1.7	1.5
					0.2	0.80	51	1.23	51	1.92	50	2.90	47	3.74	41					
					0.3	0.68	68	1.12	68	1.83	68	2.80	65	3.74	61					
					0.4	0.57	84	1.00	84	1.74	84	2.72	83	3.74	80					
	20	50	Rc 1/4	Rc 1/4	0.1	1.06	44	1.70	41	2.78	32	—	—	—	200–300	100–150	2.8	2.0	1.8	
					0.2	0.86	71	1.40	70	2.37	65	3.79	48	4.95						35
					0.3	0.67	96	1.18	95	2.05	92	3.40	82	4.84						62
					0.4	0.50	121	0.92	121	1.68	119	3.06	111	4.70						89
75	25	230	Rc 1/2	Rc 1/2	0.1	4.48	133	7.03	116	—	—	—	—	—	120–300	60–150	4.0	4.1	2.9	
					0.2	3.50	207	5.76	199	10.4	168	16.2	104	—						—
					0.3	2.54	271	4.58	268	9.27	249	15.1	200	22.3						110
					0.4	1.61	330	3.47	330	8.33	320	14.1	278	21.7						191

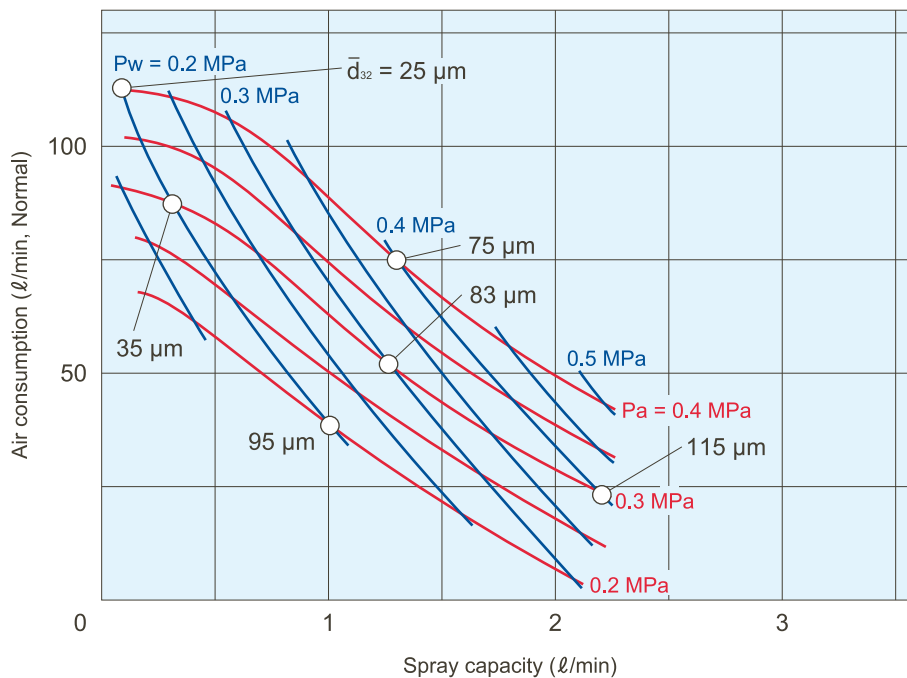
Note: Criteria for spray angle measurement differs depending on nozzle codes.

Flow-rate Diagram

Nozzle No.: DDA1001525

How to read the chart

- ① The spray capacity shown is for one nozzle.
- ② **Red lines (—)** represent compressed air pressures P_a in MPa.
Blue lines (—) represent liquid pressures P_w in MPa.
- ③ Droplet diameter \bar{d}_{32} is Sauter mean droplet diameter measured by the immersion sampling method.



How to order

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

<Example> 1/4 DDA 1252070 × (70) S303-n

1/4	DDA	125	20	70	× (70)	S303	- n
Nozzle thread size 1		Spray angle code (Width)	Spray angle code (Thickness)	Spray capacity code	Total length L1		Code of bent pipe*2
■ 1/8		■ 125	■ 45	■ 14	■ Standard (70–150)*1		(*2This code will be determined upon receipt of an inquiry.)
■ 1/4		■ 110	I	I	■ Max. 1500		
■ 1/2		■ 100	■ 15	■ 580			
■ 3/4		■ 80					
		■ 75					

*1Standard total length L1 differs with nozzle code. See page 54.