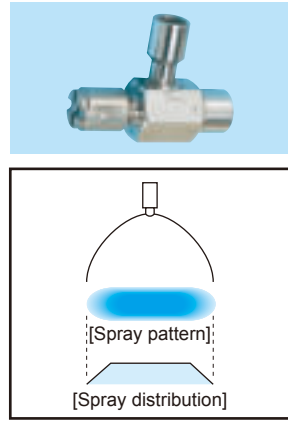


Ultra-Thick Even Flat Spray Semi-Fine, Semi-Coarse Fog Nozzles

DDA



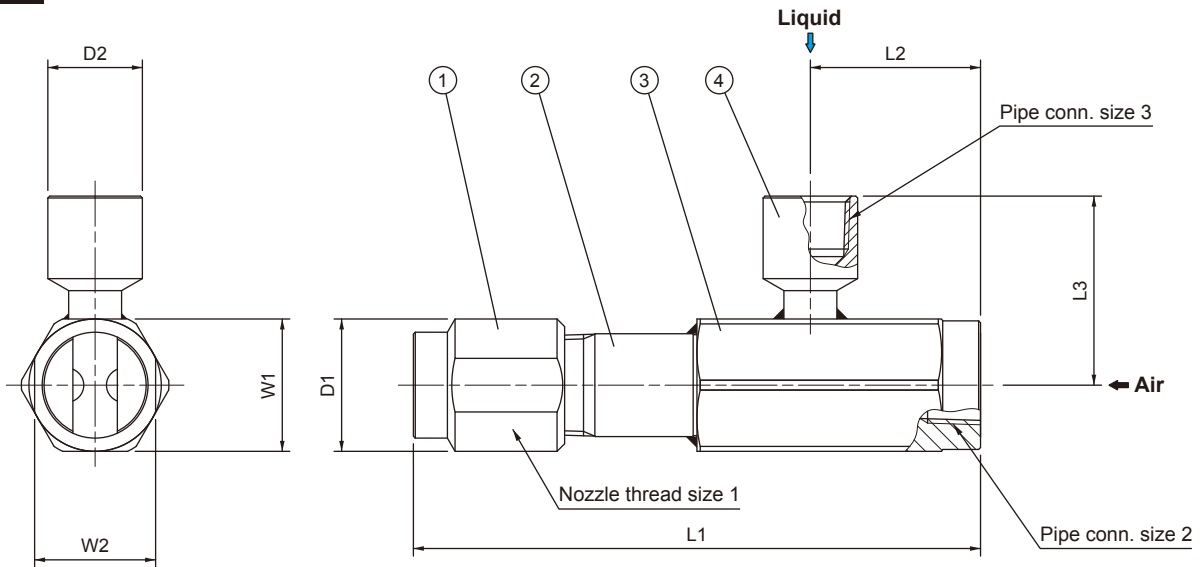
- Thick even flat spray pneumatic nozzle producing a large volume of semi-fine atomization with a mean droplet diameter of 50 µm or more.*1
- Thicker flat spray pattern covers wider area.
- Large turn-down ratio with minimal variation in spray angle.
- Spray droplet size is uniform across the entire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

*1) Droplet diameter measured by the Fraunhofer diffraction method. Please see pages 7-8 for comparison with laser Doppler method.

APPLICATIONS

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

DRAWING



COMPONENTS AND MATERIALS

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

Component #2 is not included for the DDA series with Rc1/4 pipe connection size.

DIMENSIONS

Nozzle thread size 1	Pipe connection sizes 2 & 3*2	L1*3 (mm)	L2 (mm)	L3 (mm)	W1 (mm)	W2 (mm)	øD1 (mm)	øD2 (mm)	Weight*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 weight shows DDA with standard length (L1).

For longer lengths, add the corresponding weight for each 100 mm of length as listed below.

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

PERFORMANCE DATA

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	Tip 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								
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.

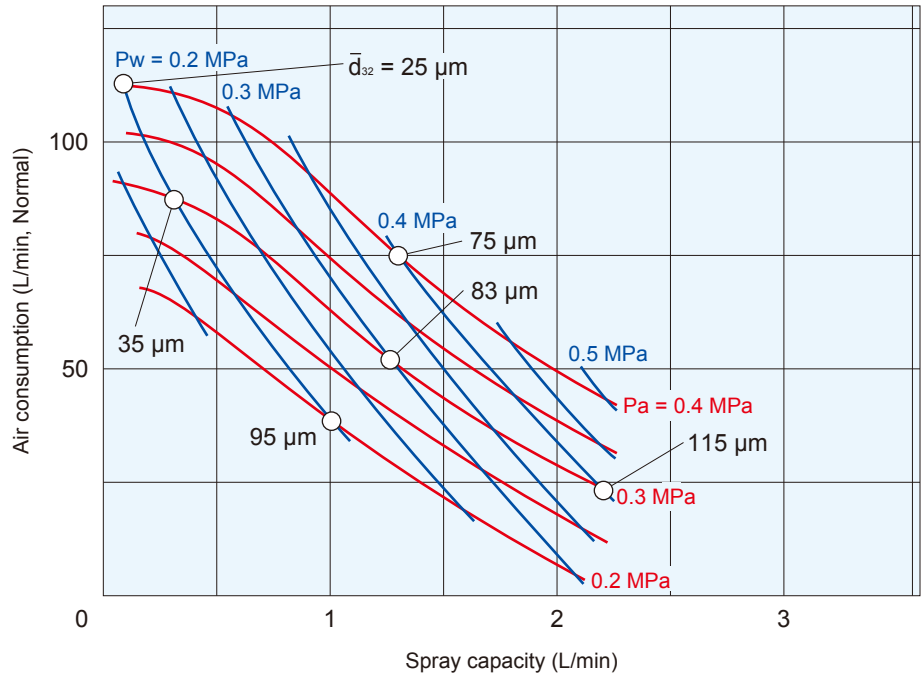
DDA

FLOW-RATE DIAGRAMS

Nozzle No.: DDA1001525

■ How to read the chart

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



DDA

HOW TO ORDER

To inquire about or order a specific product please refer to 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	Material of nozzle body	Code of bent pipe*6
■ 1/8		■ 125	■ 45	■ 14	■ Standard		(*6This code will be determined upon receipt of an inquiry.)
■ 1/4		■ 110	■ 25	?	(70-150)*5		
■ 1/2		■ 100	■ 20	■ 580	■ Max. 1500		
■ 3/4		■ 80	■ 15				
		■ 75					

*5Standard total length L1 varies with Nozzle thread size 1. See the table of DIMENSIONS on page 75.