DDRP+AS series

Hydraulic/Pneumatic (Dual-use)

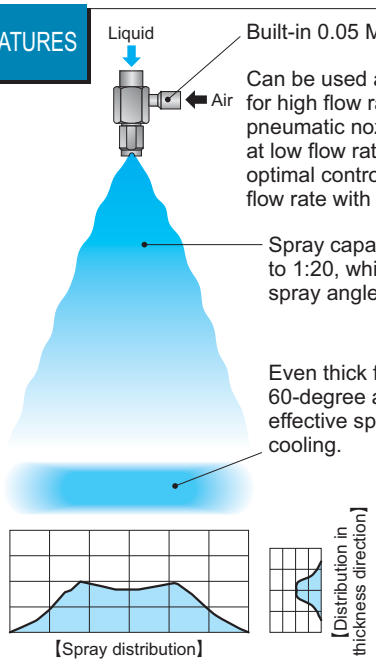
Ultra-Thick Even Flat Spray Nozzles

Patented

Steel making process

- Cooling bloom, slab short side, billet
- Roll cooling

FEATURES



Built-in 0.05 MPa check valve.

Can be used as a hydraulic nozzle for high flow rates and as a pneumatic nozzle for better control at low flow rates, which allows optimal control over a wide range of flow rate with minimal air consumption.

Spray capacity turndown ratio is up to 1:20, while minimizing variation in spray angle and distribution.

Even thick fan-shape spray with a 60-degree angle yields a highly effective spray pattern for surface cooling.

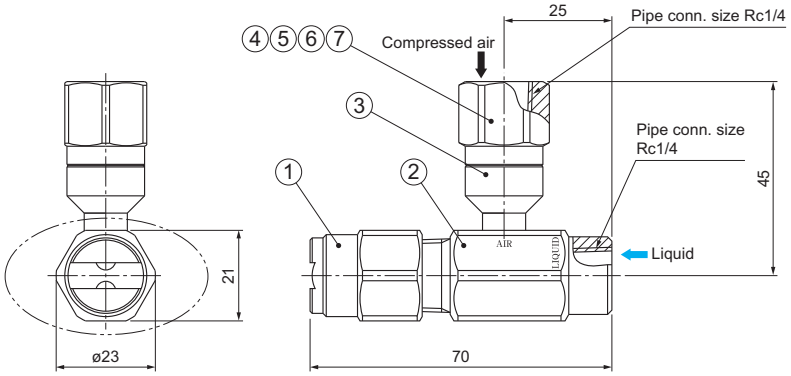
DDRP+AS series

MATERIALS

① **Nozzle body**: S303
② **Mixing adaptor**: S304
③ **Air socket**: S304
④ **Check valve body**: S303
⑤ **Poppet**: S303
⑥ **Spring**: S304
⑦ **O-ring**: NBR

MASS

190 g



Spray angle code		Spray capacity code	Spray angle (°) in width				Spray angle (°) in thickness				Spray capacity (ℓ/min) & Air consumption (ℓ/min, Normal)* Liquid pressure (MPa)									Mean droplet diameter (μm)	Free pass. dia. (mm)		
																					Nozzle	Adaptor	
Width	Thick-ness		0.01 MPa	0.1 MPa	0.3 MPa	1 MPa	0.01 MPa	0.1 MPa	0.3 MPa	1 MPa	0.01 Liquid / Air	0.02 Liquid / Air	0.05 Liquid / Air	0.07 Liquid / Air	0.1 Liquid / Air	0.2 Liquid / Air	0.3 Liquid / Air	0.5 Liquid / Air	1 Liquid / Air	1.5 Liquid / Air			Liquid	Air
115	60	200	110	113	115	116	65	58	60	60	1.55 / 29	2.93 / 25	6.81 / 2	9.29 / —	10.9 / —	15.5 / —	19 / —	24.5 / —	34.7 / —	42.5 / —	430–463	2.9	6.7	1.8
		260	110	113	115	116	65	58	60	60	2.01 / 38	3.81 / 33	8.86 / 3	12.1 / —	14.2 / —	20.1 / —	24.7 / —	31.9 / —	45.1 / —	55.3 / —		3.3	7.6	2.0
90	60	200	86	89	90	90	65	58	60	60	1.55 / 29	2.93 / 25	6.81 / 2	9.29 / —	10.9 / —	15.5 / —	19 / —	24.5 / —	34.7 / —	42.5 / —	455–488	2.9	6.7	1.8
		260	86	89	90	90	65	58	60	60	2.01 / 38	3.81 / 33	8.86 / 3	12.1 / —	14.2 / —	20.1 / —	24.7 / —	31.9 / —	45.1 / —	55.3 / —		3.4	7.6	2.0

*Air consumption measured at compressed air pressure of 0.1 MPa

Conversion of unit [Pressure] 0.1 MPa ≈ 14.50 psi, 10 psi ≈ 0.07 MPa [Flow rate] 1 ℓ (liter) ≈ 0.26 US gal., 1 US gal. ≈ 3.79 ℓ (liter)

How to order

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

<Example> DDRP 11560 200 S303 + 1/4F×1/4F AS S304

DDRP [115] 60 [200] S303+ 1/4F × 1/4F AS S304

115: Spray angle code (width)
- 115
- 90

200: Spray capacity code
- 200
- 260

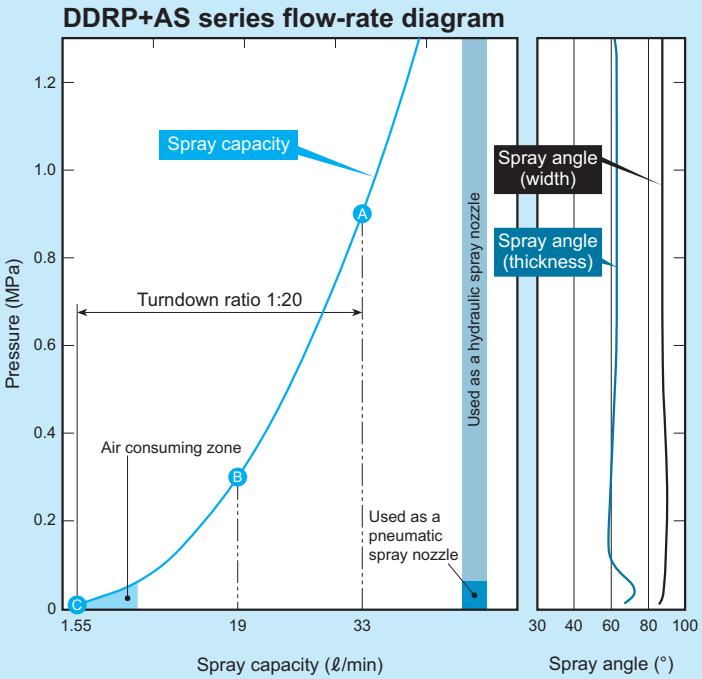
Turndown ratio range of DDRP+AS series nozzles

Turndown ratio range of normal hydraulic spray nozzles at maximum pressure is limited by pump capacity, and at minimum pressure it is limited by narrower spray angle and unstable spray condition. When the max liquid pressure of water is 0.9 MPa, the turndown ratio of normal hydraulic spray nozzles is 1:4–4.5.

DDRP+AS series can keep stable spray at very low flow due to air pressure. When the maximum liquid pressure is 0.9 MPa, turndown ratio can be extended to 1:20.

Large ↑ Spray capacity ↓ Small

Spray capacity (ℓ/min)	Liquid pressure (MPa)	Air pressure (MPa)	Air consumpion (ℓ/min, Normal)	Width	Thickness
33	0.9	0.1	0	A	
19	0.3	0.1	0	B	
1.55	0.01	0.1	29	C	



Turndown ratio range of hydraulic spray nozzle

Turndown ratio range of hydraulic spray nozzles at maximum pressure is limited by pump capacity, and at minimum pressure it is limited by narrower spray angle and unstable spray condition.
When the maximum liquid pressure is 0.6 MPa, the turndown ratio of hydraulic nozzle is 1:2.5–3.5.