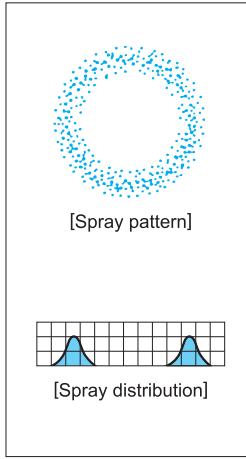


# Small Capacity Hollow Cone Spray Nozzles

**KD**

Hollow Cone



**[Features]**

- Small capacity hollow cone spray nozzle. Three-piece structure.
- Combines compact design and semi-fine atomization capability.
- The whirl chamber is formed by a ceramic orifice and whirler, which provides excellent wear-resistance.

**[Standard Pressure]**

0,3 MPa

**[Applications]**

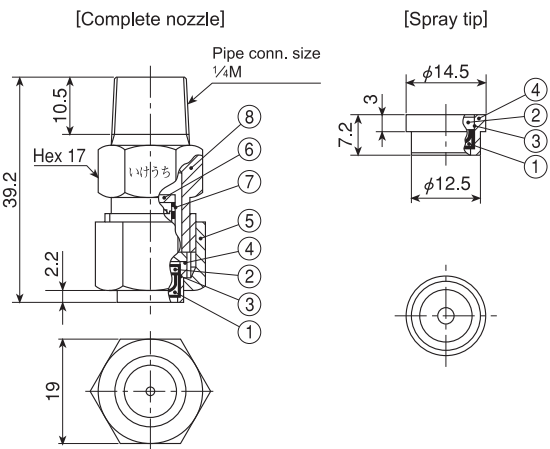
Cooling: Gas  
Spraying: Chemicals, dust suppression

**KD series**

KD series (with ceramic orifice inserted)	
Structure	<ul style="list-style-type: none"> <li>• Spray orifice and whirler are made of ceramics.</li> <li>• Comprises three parts: Spray tip, cap, and adaptor.</li> <li>• Worn-out tip can be replaced separately.</li> <li>• Removable strainer is fitted and supplied as standard part with small capacity nozzle (KD03, KD033).</li> </ul>
Material	<ul style="list-style-type: none"> <li>• Spray orifice &amp; whirler: ceramic</li> <li>• Metal parts: S303 or B (brass)</li> <li>• Optional material: S316 or others</li> </ul>
Mass	<ul style="list-style-type: none"> <li>• Complete nozzle S303: 46 g B (brass): 49 g</li> <li>• Spray tip S303: 3 g B (brass): 3 g</li> </ul>

(When with a strainer, add 2-5 g to the mass for a complete nozzle and 2 mm to the total length.)

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



- ① Ceramic orifice ② Ceramic whirler ③ Adhesive: Araldite®  
④ Tip retainer ⑤ Cap ⑥ Strainer holder ⑦ Strainer screen (S316)  
⑧ Adaptor

Spray Capacity Code	Pipe Conn. Size	Spray Angle (°)			Spray Capacity (ℓ/min)									Mean Drop. Dia. (μm)	Free Pass. Dia. (mm)
		0.15 MPa	0.3 MPa	0.7 MPa	0.1 MPa	0.15 MPa	0.2 MPa	0.3 MPa	0.5 MPa	0.7 MPa	1 MPa	1.5 MPa	2 MPa		
03	●	—	80	85	—	—	0.25	0.30	0.38	0.44	0.52	0.63	0.72	130	0.7
033	●	—	80	88	—	—	0.27	0.33	0.42	0.49	0.58	0.69	0.79		0.7
037	○	—	70	75	—	—	0.31	0.37	0.47	0.55	0.64	0.77	0.88	∫	1.0
042	○	90	93	97	—	0.30	0.35	0.42	0.53	0.62	0.73	0.88	1.00		0.7
057	○	78	85	90	—	0.41	0.47	0.57	0.72	0.84	0.99	1.19	1.36		1.1
068	○	90	95	99	—	0.49	0.56	0.68	0.86	1.01	1.18	1.42	1.62	200	1.1
084	○	90	95	103	0.50	0.61	0.70	0.84	1.05	1.21	1.42	1.69	1.92	∫	1.1
116	○	66	70	72	0.70	0.84	0.96	1.16	1.45	1.68	1.96	2.34	2.65	260	1.3
146	○	74	78	80	0.88	1.06	1.21	1.46	1.85	2.16	2.54	3.05	3.49	310	1.8
176	○	71	73	75	1.06	1.27	1.46	1.76	2.22	2.60	3.06	3.68	4.20		1.7
182	○	81	87	91	1.10	1.32	1.51	1.82	2.30	2.69	3.17	3.81	4.34		1.8
211	○	83	88	92	1.27	1.53	1.75	2.11	2.67	3.12	3.67	4.41	5.04	∫	1.8
224	○	75	80	82	1.34	1.62	1.85	2.24	2.83	3.31	3.90	4.69	5.35		1.7
262	○	75	80	83	1.57	1.90	2.17	2.62	3.31	3.87	4.56	5.48	6.25		1.7
316	○	93	97	97	1.90	2.29	2.62	3.16	3.99	4.67	5.50	6.61	7.54		1.8
394	○	83	87	91	2.36	2.85	3.26	3.94	4.98	5.82	6.86	8.24	9.40	420	1.7

●.....With strainer (#50 mesh only) ○.....Without strainer

**How to order**

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

① Complete nozzle

<Example>...¼MKD03S303W

¼MKD	03	S303	W
<small>Spray Capacity Code</small>	<small>Material</small>	<small>Strainer</small>	
03	S303	W (with Strainer)	
∫	B	— (without Strainer)	
394			

② Spray tip only

<Example>...¼KD03S303

¼KD	03	S303
<small>Spray Capacity Code</small>	<small>Material</small>	
03	S303	
∫	B	
394		

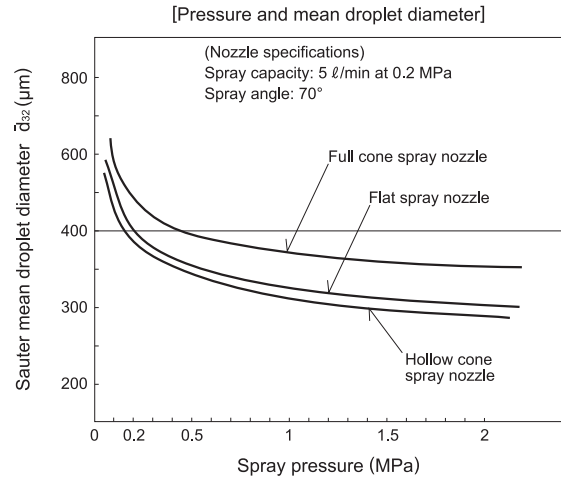
# Effective Use of Hollow Cone Spray Nozzles

## Mean Droplet Diameter

If spray pressure, spray capacity and spray angle are kept the same, the mean droplet diameter of a hollow cone spray nozzle is the smallest among all hydraulic nozzles.

Reducing the mean droplet diameter increases the total surface area of the spray liquid which has a great effect on transport phenomena of materials, such as chemical reaction, absorption, adsorption, etc.

Hollow cone spray nozzles are suitable for cooling and washing gases, humidifying and chemical reactions.



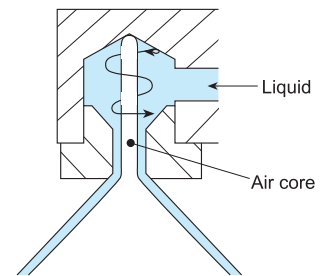
## Free Passage Diameter

Free passage diameter shows the approximate value of the smallest dimension of liquid passage in the nozzle. Among hollow cone spray nozzles, **AAP** and **TAA series** nozzles have no obstructions inside and minimize clogging problems.

## Wear Resistance

In the tangential hollow cone spray nozzles an air core is generated in the center of the vortex current, which causes wear at the end of the air core when the spraying liquid contains slurry.

In order to maintain optimum nozzle performance, the nozzle material is very important. That is why IKEUCHI's hollow cone spray nozzles are made of highly wear-resistant ceramics and SiC, etc.



## Viscosity

As the viscosity of liquid increases, the spray capacity of hollow cone spray nozzles increases but the spray angle decreases. Also, the mean droplet diameter becomes larger. Because viscous liquid increases the resistance inside the pipe, the liquid pressure drop must be also taken into consideration.

