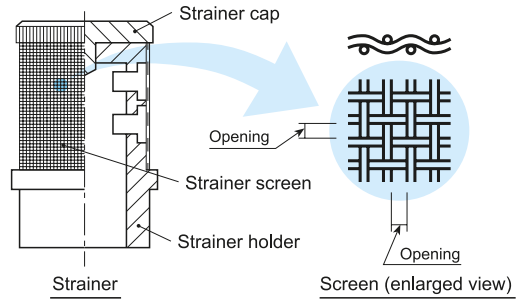


# Effective Use of Standard Flat Spray Nozzles

## Strainer Mesh Size

The strainer fitted inside the nozzle comprises strainer holder, strainer screen, and strainer cap.

Strainer mesh size	Opening (mm)	Free passage diameter (mm)
#200	0.07	0.2 or less
#150	0.10	0.3–0.4
#100	0.15	0.5–0.7
#50	0.30	0.8–0.9

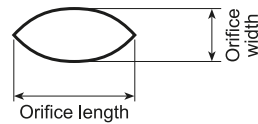


## Advantages and Disadvantages of Ceramic Nozzles

- CERJET® Ceramic Nozzle can resist most acids and strong corrosive liquid except for hydrofluoric acid and strong alkalis (pH 12 or higher).
- CERJET® Ceramic Nozzle has high wear resistance (its hardness Mohs scale 7), several hundred times that of brass and 20–30 times that of stainless steel. It is well-suited for high pressure cleaning. However, it is brittle and may crack by quenching or sudden temperature drops of more than 200°C.
- For most of our spray nozzles with ceramic orifice inserted, epoxy resin adhesive (Araldite®) is used for bonding a ceramic orifice to a metal part. In applications where epoxy resin is not suitable, we recommend our CERTIIM®, a plastic nozzle with a one-shot injection molded ceramic orifice.

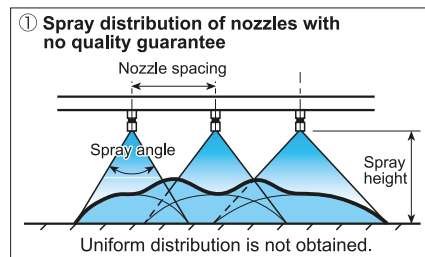
## Free Passage Diameter

The standard flat spray nozzle orifice has a cat-eye shape. The free passage diameter is the orifice width multiplied with a safety factor.



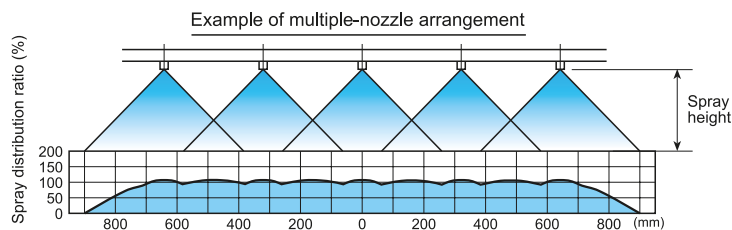
## Spray Distribution

Our standard flat spray nozzles are designed to produce a mountain-shaped distribution in order to obtain a uniform spray distribution in a multiple-nozzle arrangement. Although the distribution depends on spray height, nozzle spacing, liquid pressure, and liquid nature, it is not possible to get the desired spray distribution if spray nozzles have some variation in product quality. IKEUCHI's hydraulic spray nozzles are guaranteed for spray angles and spray capacities so that uniform distribution is maintained as designed.



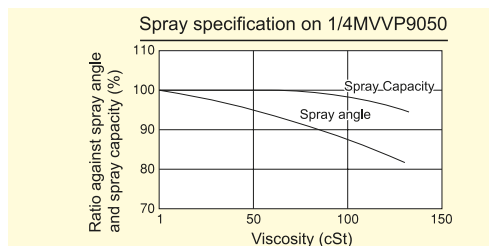
## ② Spray distribution of IKEUCHI nozzles with quality guarantee

When using our nozzles with spray performance guaranteed, uniform distribution is formed by overlapping mountain-shaped distributions.



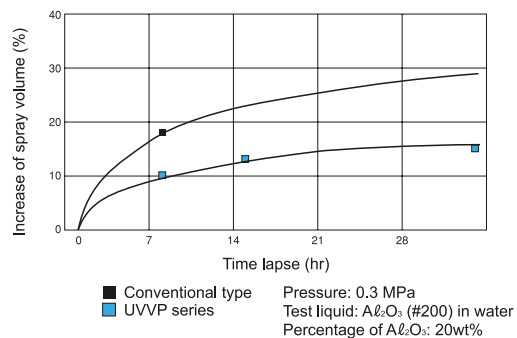
## Viscosity

There is a tendency for spray capacity and spray angle to be decreased and also for spray distribution to deteriorate if the viscosity of the liquid is increased. The resistance of liquid in the pipe is also increased. When spraying such liquids, pressure drop in the pipe must be also taken into consideration.



## Comparison of Wear-resistance

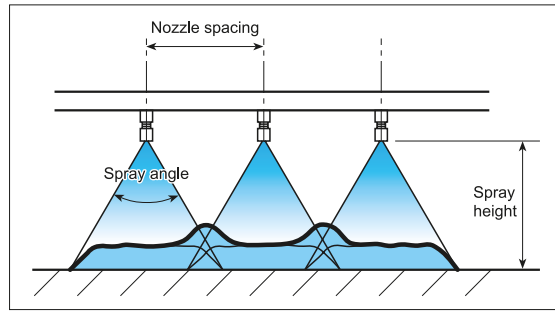
Shown below is the comparison of wear-resistance between a UVVP series flat spray nozzle and our conventional type.



# 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 (see page 25 for details).



## Tightening Torque

For high-pressure cleaning, high 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.

- 8 N-m for size 1/8" (stainless steel body and brass body)
- 15 N-m for size 1/4" (stainless steel body and brass body)

## 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 solid stream jet nozzles is the strongest followed by flat spray nozzles and cone spray nozzles.

### [Spray Impact]

	Spray impact (x $\frac{1}{100}$ N/cm)	
	Max.	Average
1/8MDSP15104	560	503
1/8MVNP1580	460	390

- Pressure: 5 MPa
- Spray height: 150 mm



### [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	1/8MDSP15104		1/8MVNP1580	
Pressure (MPa)	5.0	7.0	5.0	7.0
Spray angle (°)	16.0	16.0	16.5	17.0
Spray capacity (ℓ/min)	9.9	11.7	10.1	12.0

