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Boyuan Spraying

Engineering Description
Key performance considerations (Selecting spray nozzles for specific applications is important)

•Impact force

The impact of the spray on the target surface can be expressed in several different ways. The most useful impact value related to the performance of the spray nozzle is the impact force per square centimeter.

Essentially, the value depends on the spray shape distribution and the spray Angle. To obtain an impact force per square centimeter of a known nozzle (kg/cm2),
Firstly, the formula is used to determine the theoretical total impact force:

Then look up the percentage of square centimeters that account for the theoretical total impact force from the table below and multiply by the theoretical total impact force. The result is a spray impact force in kilograms per square centimeter.

The liquid column flow nozzle produces a maximum impact force of kg/cm2, which can be calculated according to the formula 1.9X (injection pressure, kg/cm2).

Spray Pattern	Spray Angle	Impact the percentage of theoretical impact per square centimeter
Flat fan	15°	30%
	35°	18%
	35°	13%
	40°	12%
	50°	10%
	65°	7%
	80°	5%
Full cone	15°	11%
	30°	2.5%
	50°	1%
	65°	0.4%
	80°	0.2%
	100°	0.1%
Hollow cone	60° 80°	1到2%

*At a distance of 30 centimeters from the nozzle.

$$\text{Total impact force of spray water theory} = (KG\text{-}Force) =$$
$$0.024X \;(\text{L/Min, At injection pressure}) \; X \; \sqrt{\text{Injection Pressure, (kg/cm2)}}$$

•Working Pressure

The values provided in the listing section of this catalog indicate the most commonly used pressure ranges for the relevant spray nozzles or parts. - Some spray nozzles and spare parts can work at or above the given pressure, while others can be modified or redesigned in our factory to suit the needs of specific new applications.

•Density

Density is the ratio of a given volume of liquid to the mass of the same volume of water. In spray, the main influence of the specific gravity of the liquid (other than water) is the flow rate of the spray nozzle. Because the values listed in this catalog are based on jet water, a conversion factor can be applied to determine the nozzle flow rate when you apply it to liquids other than water.
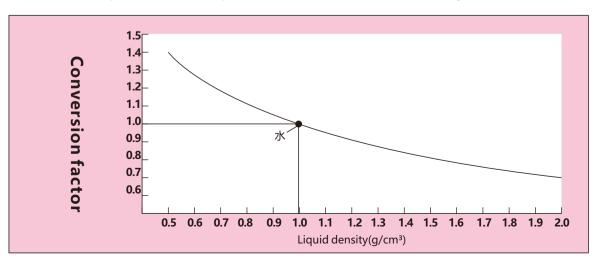
The formula used to replace the chart is as follows:

$$\text{The flow of liquid sprayed} = \text{water flow} \sqrt{\frac{1}{\text{Density}}}$$

The key:

The conversion factor is multiplied by the flow rate of the nozzle when spraying water to obtain the flow rate of the nozzle when the nozzle sprays the liquid with the density corresponding to the conversion factor.

This conversion factor only includes the effect of density on the flow rate, and does not include other factors affecting the flow rate.