

Seven reasons why spray nozzles don't perform properly

Nozzle performance can be compromised and even rendered totally ineffective by eroded, damaged or obstructed nozzle orifices.

Erosion/wear

Gradual removal of the nozzle material causes the nozzle orifice and internal flow passages to enlarge and/or become distorted. As a result, flow is usually increased, pressure may be decreased, pattern becomes irregular and the spray drops become larger.

Hollow Cone Nozzle



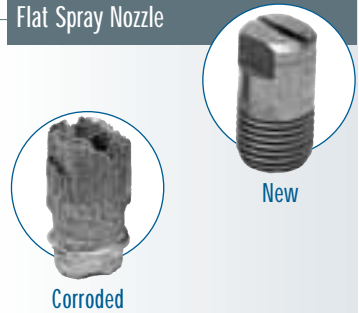
New

Excessive Wear

Corrosion

Nozzle material may break down due to the chemical action of the sprayed material or environment. The effect is similar to that caused by erosion and wear, with possible additional damage to the outside surfaces of the nozzle. In particular, the performance of air atomizing nozzles is highly sensitive to corrosion. Even small amounts of corrosion will negatively impact drop size and uniformity.

Flat Spray Nozzle



New

Corroded

Please note: Photographs of worn or damaged nozzles illustrate extreme conditions of neglect. Nozzle problems should never be allowed to reach this stage.

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High temperature

Certain liquids must be sprayed at elevated temperatures or in high temperature environments. The nozzle may soften and break down unless special, high temperature resistant materials are used.

Full Cone Nozzle



Heat Damaged



New

Caking/bearding

Build-up of material on the inside or outer edges of the orifice can occur and is caused by liquid evaporation. A layer of dried solids remains and obstructs the orifice or internal flow passages. Bearding, the build up of materials near the orifice of the nozzle, is also detrimental to nozzle performance and can have serious consequences in some nozzle types such as air atomizing.

Hollow Cone Nozzle



Caked



New

Accidental damage

Damage to an orifice or nozzle can occur by inadvertent scratching when improper cleaning tools are used. Nozzles are also frequently damaged when dropped during installation or operation.

Flat Spray Nozzle



Damaged



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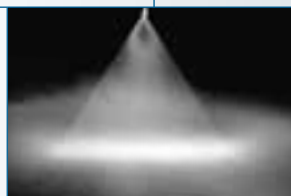
Clogging

Unwanted solid particles can block the inside of the orifice. Flow is restricted and spray pattern uniformity disturbed.

Flat Spray



Clogged Nozzle

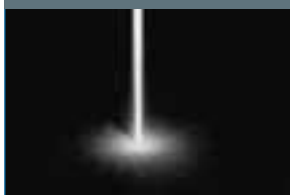


Clean Nozzle

Improper assembly

Some nozzles require careful re-assembly after cleaning so that internal components, such as gaskets, O-rings and internal vanes, are properly aligned. Improper positioning may result in leakage and inefficient spray performance. Over-tightening of nozzle caps onto bodies can cause thread stripping.

Full Cone Spray



Improper Assembly



Proper Assembly