



## The principles of spraying

### What is spraying?

Spraying has several meanings. We aim:

- to vaporize the liquid to form a mist
- to cover an area with a fine thickness of liquid generating a mist.

There are several way to spray:

Case	Process used	Adjustment of the liquid flow
1	by pushing a liquid under high pressure through a nozzle (sample: a gas oil injector).	by changing the liquid pressure or features of the nozzles (the nozzle or its section, for sample with a cone-point screw)
2	by supplying a nozzle with a gaz. The pressure is sufficient to suck the liquid up and to spray it.	by changing the gas pressure or with a flow regulator set on the liquid circuit.
3	by throwing through a nozzle a mist made up from a gas and a liquid. <i>The nozzle is not used to create the mist.</i>	by changing the mist concentration or its flow.
4	with a nozzle separately fed with liquid and compressed gas. <i>The gas sprays the liquid but does not suck it up.</i>	with something included in the device which feeds the nozzle with the liquid.)

Most of the time the used gas is air.

The sprayed quantity of liquid may be adjusted by changing the spraying duration.

### The shape of jets

The shape of the jet is a feature of nozzles. It is sometimes adjustable.

### Spraying and microlubrication, minimum quantity lubrication (MQL)

Most microlubrication devices are designed to spray as case (3) or (4). In fact, they are fitted with nozzles supplied in liquid by a micropump and in compressed air with a flow regulator or a pressure regulator. The liquid flow is adjusted with the capacities of micropumps or by changing the timing of micropumps.

Microlubrication spraying is also named microspraying.

## ACOVAL spray devices

VIBRACO builds:

- spray nozzles which work as case **(2)**. They are used for easy applications which do not require a high precision of the liquid flow.
- spray nozzles which work as case **(4)**. The liquid flow is adjusted with a screw on nozzles or by the pressure of the supplied liquid. The shape of the jet is adjustable and can cover wide areas. Most liquids may be sprayed by these nozzles. Their technology allows to spray without forming a mist.
- Microlubrication devices which work as case **(4)**. The liquid flow is adjusted by the timing of micropumps or their capacities. ACOVAL microlubrication nozzles produce conic jets, flat jets, hollow jets, disc jets.