



NANOVAL – The specialist for customized metal powder and atomizing plants

NANOVAL was founded in 1987 for the industrial use of the patented powder atomization process for metal melts, using a Laval nozzle, and is until today an owner-operated company with 16 employees.

NANOVAL produces fine, spherical powders with reproducible properties and quality on its own equipment according to customer requirements and can alloy, atomize and classify highly demanding compositions as required. Depending on the alloy, we choose either the crucible or our own developed crucible-free melting process and are thus able to produce metal powders, starting from aluminium-based alloys with additives such as Zr, Hf, etc. up to refractory metals, on request.

The NANOVAL process uses a special type of gas flow to split the melt stream. In our plants, the melt flows through a so-called Laval nozzle and is surrounded by a laminar gas flow in the same direction, which avoids undesired turbulences and ensures spherical particles. The gas stresses the liquid filament by shear stress, which leads to a pressure increase in the melt filament. The liquid stream explodes as soon as the pressure inside rises sufficiently. The higher the pressure inside the melt, the finer the resulting powder. Additional process reliability is gained when the gas experiences extreme acceleration - possible turbulences are thus simply "smoothed out". This strong acceleration is guaranteed by using the Laval nozzle. Within the Laval nozzle, the gas is accelerated to the speed of sound of about 300 m/s over a distance of a few millimetres up to its narrowest cross-section. As a result, very fine powders can be produced, which already have a narrow particle size distribution (d_{50} from 100 μm up to 10 μm , depending on the case also up to 4 μm) directly after atomization without classification and thus offer a high yield.

We manufacture the powder just in time for our customers and produce cross-application and cross-industry with batch sizes between 2 kg and 5,000 kg. We are the right partner for research and development and are able to offer our expertise from over 1,000 different, successfully atomized alloys and to develop possible test series with different parameter settings in order to produce the optimum powder.

Furthermore, we are also plant engineers and erect individually designed atomization plants for our customers.

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