

GEA Presents the NiSoX-Valve: A New Concept in Homogenizing Valve

Düsseldorf (Germany), April 14, 2016 – Solid experience and extensive engineering skills have enabled GEA to develop a new homogenizing valve that represents a watershed in high pressure homogenization technology. For manufacturers looking to achieve a high quality homogenizing action, producing uniform particles of the required size, the NiSoX-Valve offers the perfect solution. GEA will be demonstrating the new valve on a PantherNS3006L homogenizer at INTERPHEX from 26-28 April 2016, Javits Center, New York City, USA.

The NiSoX-Valve geometry facilitates a better distribution of energy toward the middle of the valve, promoting a more effective reduction in particle size, and above all a significantly enhanced level of particle uniformity, compared to previous valves. Laboratory tests have shown that the NiSoX-Valve model currently available is able to improve the uniformity of particles thanks to a standard deviation (or polydispersity index) lower than that of other valves, especially for VHP applications in the pressure range from 600 up to 1500 bar.

Applications and design

Notable advantages are afforded by the NiSoX-Valve when processing pharmaceutical and cosmetic micro and nano emulsions, nutraceuticals and liposomes:

- better homogenizing action
- up to 45% improvement in particle uniformity
- lower polydispersity index compared with the standard valve
- increased stability and qualitative performance of the product

With the NiSoX-Valve the energy generated at high pressure is exploited and optimized using a different principle to that of conventional valves: the effects of elongation, acceleration and radial impact that the particles undergo inside the valve are the main reason behind the better homogenization obtained ultimately.

From the mechanical standpoint, the geometrical configuration of the NiSoX-Valve is different to that of previous valves, with a simplified design featuring a deflector and an interaction chamber, whilst in terms of effectiveness on the product, all the benefits of traditional fixed geometry and high pressure homogenizers are retained and exploited to the full. The adoption of the new NiSoX-Valve geometry provides various advantages relating not only to the product, but also to energy usage and operation of the machine:

- reduction of operating pressure by up to 30%, for a given degree of homogenization
- energy saving proportionate with results

The NiSoX-Valve is made currently in two sizes for high pressure applications, with tungsten carbide and ceramic versions available, for homogenizers of the Ariete series, models NS2006 to NS3075.