

SOLUTIONS WITH METAL FOAM

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HIGH-TECH SUBSTRATE
FOR EFFECTIVE DIESEL
PARTICULATE FILTERS.



INNOVATIVE ALLOY METAL FOAMS

ALANTUM develops, produces and distributes alloy metal foams based on nickel or iron. Of special interest is the fact that due to a unique patented manufacturing process, the innovative ALANTUM alloy foams combine a number of hitherto unrealized properties. They are advanced high-tech materials that meet today's greatest demands and tomorrow's major challenges.



01 *Flat design: Ideal for side mounting*



02 *X-flow design: The exhaust gases flow consecutively through two substrates (in-out and out-in). Ideal for cramped installation space*

HIGH-QUALITY BASE, INTELLIGENT SURFACE TREATMENT PROCESS

ALANTUM alloy metal foams are based on the use of flexible metal sheets. Even these basic products offer considerable benefits: They are light in weight, have an open-pore structure and possess a large surface area from the outset. The metal foam sheets first become true multi-talents, however, when subjected to the ALANTUM-patented stable surface treatment process using high-alloy metal powders. In the course of this sintering process, a homogeneous structure is created that is tougher while remaining flexible, with a 30 to 50 percent larger surface area than the original material.

STRIKING PROPERTIES:

- Corrosion-resistant
- Temperature-resistant up to 1200°C in peaks
- Thermally conductive – so no thermal problems occur when actively regenerating the DPF
- Flexible – for almost unlimited freedom in design
- Open-pore and with an enormously large specific surface area – for very good soot loading capacity

ALANTUM alloy metal foams are ideal for use as substrates for diesel particulate filters (DPFs)

DEFINABLE DEPOSITION RATES

ALANTUM alloy metal foams are available in various pore sizes: From 450 μm with a material density of 0.695 g/cm^3 through 580 μm with 0.581 g/cm^3 , 800 μm with 0.448 g/cm^3 and 1200 μm with 0.351 g/cm^3 . Other porosities and densities are available in addition to these standard sizes. By combining different foam layers, particulate deposition rates can be defined according to need from 50 percent to 80 percent, and in special cases up to 90 percent.



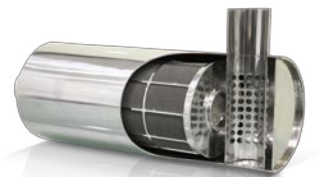
03 Multiple layers of foam, multiple advantages: Exactly defined deposition rates, no blow-off effects and outstanding acoustic damping in addition

HIGHLY FLEXIBLE SUBSTRATE

The flexible ALANTUM alloy metal foams permit a large degree of freedom when designing DPF components. The shape and size can be easily changed to fit the available space. They are therefore ideal for use as a substrate in exhaust after-treatment systems for vehicles with a short wheelbase. These include commercial or off-road vehicles with extremely limited integration space. To this must be added a sensational side effect that saves even more installation space: The outstanding acoustic damping properties of the ALANTUM alloy metal foams means that downstream silencers are in general no longer necessary.

ECONOMIC ADVANTAGES

ALANTUM alloy metal foams can be worked easily and costs are therefore optimized. Their flexible but still stable structure permits easy canning without the need for filter beds. Further cost optimization potential can be found in the possibility of integrating the diesel particulate filter and the diesel oxidation catalyst into one component. To do so, a washcoat is applied to several layers of the metal foam. The specific surface area of ALANTUM alloy metal foam is significantly larger than that of conventional substrates. This and the high turbulence of the gas stream enable an enormous saving in precious metal usage.



Round



Oval



Rectangular



Tri-oval

05 Flexible high-tech material: Not only the shape, but also the pore size, material density, alloy composition and washcoat can be varied as necessary

04 Design freedom: The flexible ALANTUM metal foams permit diesel particulate filters and many other exhaust gas after-treatment systems to be designed with shapes, sizes and mounting possibilities that fit even into narrow installation spaces