

26th June 2024 – Paris, France

Aubert & Duval and Alloyed Launch ABD[®]-1000AM Nickel Superalloy at RAPID + TCT

Aubert & Duval and Alloyed are delighted to announce the release of Alloyed's new nickel superalloy ABD[®]-1000AM, the latest in its range of alloys developed specifically for the additive manufacturing (AM) process.

Designed using Alloyed's computational Alloys-by-Design[®] platform, the alloy provides excellent environmental resistance and high-temperature strength, with a working temperature range beyond 1000°C (1832°F) in its age-hardened state. Compared to cast alloy Ni247LC, the alloy offers near-equivalent stress rupture life while allowing crack-free additive manufacture and heat treatment, enabling complex part design for components within the aerospace, power, automotive, defence and space industries.

The agreement between Alloyed and Aubert & Duval expands upon the successful partnership already in place covering ABD[®]-900AM, the world's most readily processable ultra-high-temperature nickel alloy. Under the terms of the agreement, Aubert & Duval will be Alloyed's production partner for ABD[®]-1000AM, supplying Alloyed with the powder feedstock that it is using to manufacture components.

Jean-François Juéry, EVP Business development & Strategy of Aubert & Duval, said: "We are very pleased to extend our metallic powder activities with our long-term partner Alloyed through this new agreement for ABD[®]-1000AM; for Aubert & Duval, the ABD[®] alloys demonstrate the potential that can be realised by designing materials for the AM process, so adding a best-in-class alloy such as ABD[®]-1000AM as part of our powder range portfolio is an exciting next step. We are convinced that Additive Manufacturing technology combined with High Temperature powder Alloys is a promising solution in particular to achieve carbon footprint reduction in various industries: over the last five years, we have indeed seen huge growth in interest and orders for these innovative alloys across all industrial sectors, so we are excited to see what new products and performance gains will be enabled by the commercial availability of ABD[®]-1000AM."

The AM industry has long sought to be able to manufacture parts in alumina-forming alloys such as Ni247LC and Ni713, though the susceptibility of these alloys to cracking has significantly limited the maturity that's been reached, resulting in very few applications that can make use of them. Designed to be free of solidification, liquidation, and strain-age cracks, ABD[®]-1000AM showcases exceptional processability for such a high-performance alloy. The typical microstructure is characterised by a relative density above 99.9% and exceptionally low defect levels, consisting of 55% gamma prime phase fraction in the age-hardenable state, a characteristic that was only made possible through use of Alloyed's ABD[®] platform to design the alloy specifically for the characteristics of the AM process.

Michael Holmes, CEO of Alloyed, commented: "Extending our portfolio of alloys through the introduction of ABD[®]-1000AM is a really exciting next step for Alloyed, greatly expanding our capability to deliver AM parts that can operate in some of the most extreme environments, and we're thrilled to be doing it with Aubert & Duval as our trusted partner – their experience and track record of producing exceptional nickel powders is world-class, so we look forward

to continuing our relationship with them. The alloy itself is set to bring great developments to the world of metal AM, unlocking applications that were previously deemed unfeasible due to the limited materials suited for the process, so we're excited to start manufacturing parts and developing applications with our customers."

Aubert & Duval and Alloyed are exhibiting at RAPID + TCT in Los Angeles from June 25th – 27th at stand 827 and will present a conference paper on the alloy in room 406 B at 11:30 on Wednesday 26th.

AUBERT & DUVAL

Aubert & Duval is one of the world's leading producers and processors of complex metallic materials (special steels, superalloys, titanium, aluminum), serving strategic industries such as aeronautics, space, defense, nuclear power, energy or medical. Aubert & Duval provides its customers with a comprehensive production chain ranging from materials design to forged blank parts, enabling them to secure their supply chain and meet their decarbonation challenges. Aubert & Duval is owned in equal parts by Airbus, Safran and the Tikehau Capital fund, one golden share being owned by the French State. www.aubertduval.com

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ALLOYED

Alloyed offers AM capabilities at every length scale, developing and applying world-leading digital platforms for the design and manufacture of superior alloys and advanced metal components. Together with unparalleled metallurgical expertise for the design, optimisation, and testing of existing/new alloys for traditional and additive manufacturing techniques, Alloyed uses proprietary platforms to unlock reliable and cost-effective production of high performance AM components. Alloyed results from the merger of OxMet Technologies and Betatype at the beginning of 2020, which assembled an unequalled mix of capabilities for digital metal applications and a compelling offering for manufacturers in a wide range of markets. <https://alloyed.com>

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