Press release

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Launcher acquires a Solukon Depowdering system for the Postprocessing of Additively Manufactured Rocket Parts

Augsburg, Germany / Hawthorne, CA, USA
American aerospace company Launcher has announced Solukon as its preferred supplier for powder removal systems. Within the scope of the partnership, Launcher will utilize Solukon's machine, the SFM-AT1000-S, for the postprocessing of extraordinary large and heavy rocket parts. Solukon's depowdering system offers fast and efficient removal of metal powder for applications of up to 1,000 mm height.

The postprocessing of components in the Additive Manufacturing process is a significant step. Due to complex geometric shapes and, for example, internal cooling channels or internal structures, depowdering can become complicated and time-consuming. In addition, users are faced with risks including explosion, occupational health, labor costs, powder recovery, cleaning quality and process repeatability. Copper (CuCrZr), the material of choice at Launcher due to its high conductivity and efficient cooling, poses a particular depowdering challenge as copper powder residues tend to clog in cavities and show a sticky behavior. In addition, manual cleaning obviously reaches its limits when it comes to rocket parts with a height up to 1,000 mm weighing several hundred kilograms.

SPR® Technology for a safe and reliable depowdering
Solukon tackles these issues with its unique SPR® technology (Smart Powder Recuperation). The SFM depowdering systems remove residual and clogged powder from metal laser melted parts within a sealed process chamber, using adjustable vibration and automated two-axis part rotation while recovering superfluous powder. Through programmable rotation of the build plate in two axes, unfused metal build material is completely removed from complex channels and geometries, meaning a significant increase in efficiency, safety and quality – all while saving on costs.

SFM-AT1000-S becomes part of the Launcher fleet
Launcher from now on relies on the postprocessing knowledge of Solukon. They acquire the depowdering system SFM-AT1000-S, the unit for extraordinary large parts, to completely free rocket engines and combustion chambers from powder. Launcher, located in Hawthorne, California, is an industry-leading developer of highly efficient rockets and transfer vehicles. The company currently operates a fleet of cutting-edge metal additive platforms and other advanced manufacturing assets from partners including Velo3D, EOS and AMCM. Today, Launcher produces every major part of its transfer vehicle, Orbiter, and E-2 liquid rocket engine in-house, as part of its strategy to

build, test, and iterate as cost-effectively as possible as it develops high-performance rockets and transfer vehicles.

Figure 1: The SFM-AT1000-S, the trusted powder removal system of Launcher

"We're happy to include the state-of-the-art system for depowdering to our outstanding AM fleet", says Max Haot, founder and CEO of Launcher. Tim Berry, Launcher's Head of Manufacturing, adds: "We see that automated powder removal is an essential step in the production process. For final heat treatment and Hot Isostatic Pressing all parts must be free of any powder, a special challenge for large and heavy parts with hard-to-access internal channels. The SFM-AT1000-S will help to further automize our production process as we achieve reliable and repeatable cleaning results. In addition, we benefit from Solukon's experience and support when optimizing our fast and forward-thinking production lines."

Launcher acquires a perfect-fit postprocessing system for rocket parts
The one-meter-high Launcher E-2 engine, first time presented in 2019, was made in Germany by AMCM using its specialized M4K printer. With the purchase of the SFM-AT1000-S through Launcher, the wheel has come full circle as this Solukon system was initially developed at the request of AMCM for a depowdering solution for parts exactly from this M4K printer.

Figure 2: The E-2 engine combustion chamber of Launcher. Credits: Launcher

The Solukon SFM-AT1000-S, an advancement of the SFM-AT800-S-system and a special version particularly designed for large and heavy parts, allows to easily move parts with a size up to 600 x 600 x 1.000 mm (XYZ) with a weight up to 800 kg. This makes it the ideal postprocessing system for the Aerospace & Space industry. The SFM-AT1000-S has two endless rotating axes with programmable servo-drives so that it can move the part along any imaginable path. Individual control is also possible by using a joystick to move the component flexibly in any direction at variable speed and to save the movement pattern afterwards. The optional Digital Factory tool enables quality assurance and automation integration of the depowdering process.

"Yet again, it's an honor to support a leading New Space company with our SPR® technology. Shortly after the demand for a machine compatible with the AMCM M4K printer came up, we responded directly by developing the SFM-AT1000-S. I'm sure pioneers like Launcher will keep pushing the boundaries of what's possible in Additive

Manufacturing. Likewise, I'm sure we'll always stand by their side with the ideal depowdering solution", says Andreas Hartmann, CEO and CTO of Solukon.

Figure 3: The SFM-AT1000-S handles extraordinary large parts weighing up to 800 kg.

Official deal of Launcher and Solukon at Rapid + TCT show in Detroit, MI

Solukon and Launcher will officially announce their partnership at Rapid + TCT show in Detroit, Michigan (May 17-19). Visitors will have the opportunity to explore the Launcher system live and in color at the Solukon booth 2137. The Solukon team is looking forward to seeing you there.

About Solukon
Solukon Maschinenbau GmbH is a German high-quality supplier of powder removal and processing systems for metal and polymer Additive Manufacturing. Founded in 2015, the company, located in Augsburg, has extensive experience in the development of AM systems and related peripheral equipment, and offers a full range of industrial powder processing systems. Solukon products meet the highest functionality and safety standards and are approved for safe and reliable removal of tough-to-handle and reactive materials such as titanium and aluminum.
Solukon is present on four continents. The systems are trusted by leading manufactures of 3d-printing systems, like EOS, AMCM and SLM Solutions, by institutions like NASA and CERN as well as by companies like Siemens and ArianeGroup.

About Launcher
Launcher opened its 24,000 square foot production facility in Los Angeles in June 2021 and currently operates a fleet of cutting-edge metal additive platforms and other advanced manufacturing assets from partners including Velo3D, Solukon, and EOS. Today, Launcher produces every major part of its transfer vehicle, Orbiter, and E-2 liquid rocket engine in-house, as part of its strategy to build, test, and iterate as cost-effectively as possible as it develops high-performance rockets and transfer vehicles.

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