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Coaxial wire cladding in the next generation

Fraunhofer IWS Dresden presents new COAXwire laser processing heads at Hannover Messe and ILA Berlin

(Berlin/Dresden, April 17, 2018) The next generation's laser wire processing optics "COAXwire" is in the starting blocks. At the Hannover Messe and the ILA Berlin, the Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS Dresden presents two versions of its coaxial wire optics. A completely newly developed miniaturized version enables high-precision processing of complex components with fine wire. In a macro version, the head can be equipped with a hot-wire module.

Due to the positive response from users and the visibly growing demand, Fraunhofer IWS presents the next generation's coaxial laser wire processing optics under the name "COAXwire" in the fifth year after its introduction. The Dresden Institute equipped the system with specially designed optical components, wire and media supply as well as cameras and sensors according to the application. The scientists enable monitoring of the cladding head as well as recording, processing and networking of relevant digital data as new functionalities.

COAXwire mini for filigree and complex components

Fraunhofer IWS I exhibits a completely newly developed miniaturized version at the Hannover Messe 2018: The COAXwire mini is intended to close the gap to high-precision machining, especially for applications for repairing and generating high-quality and filigree complex components. For the first time, fine wires from 300 to 600 micrometers in diameter can be processed in a machine-guided system – for certain alloys this applies to the particularly demanding range of 100 to 250 micrometers. This opens up the dimension from 200 to about 1200 micrometers structure resolution of the deposited material with complete material utilization. Following new trends in laser source development, the system's optics are designed for the relevant wavelengths from 890 to 1100 and from 450 to 550 nanometers.

This qualifies the processing head for beam sources emitting in the green or blue light spectrum and opens up a better possibility to process materials such as copper or gold.

Head of Corporate Communications

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FRAUNHOFER-INSTITUT FÜR WERKSTOFF- UND STRAHLTECHNIK IWS**COAXwire with hot wire for increased productivity**

With the second larger COAXwire version, which Fraunhofer IWS will present at the ILA Berlin2018, the laser wire processing head can be equipped with a hot wire module. While maintaining full directional independence and 3D capability, this option enables a 20 to 40 percent increase in deposition rate, depending on the material. In addition, the process window for efficient and defect-free processing of modern high-performance metallic materials is increased to the same extent. "Wires have always been the backbone of filler materials in welding technology," Prof. Steffen Nowotny, head of the Thermal Coating Department at the Fraunhofer IWS, explains: "Particularly in cladding processes, this permits the possibility to be inserted easily into the welding zone, to make full use of the wire and to protect environment, machine as well as operating personnel due to the characteristic clean processes."

Visit us at the Hannover Messe in hall 5, booth A35 (April 23-27, 2018), and at the ILA Berlin (International Aerospace Exhibition) in hall 4, booth 202 (April 25-29, 2018).

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The **Fraunhofer-Institut für Werkstoff- und Strahltechnik IWS Dresden** stands for innovations in laser and surface technology. As an institute of the Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e. V., IWS offers one stop solutions ranging from the development of new processes to implementation into production up to application-oriented support. The fields of systems technology and process simulation complement the core competencies. The business fields of Fraunhofer IWS include PVD and nanotechnology, chemical surface and reaction technology, thermal surface technology, generation and printing, joining, laser ablation and separation as well as microtechnology. The competence field of material characterization and testing supports the research activities.

At Westsächsische Hochschule Zwickau, IWS runs the Fraunhofer Application Center for Optical Metrology and Surface Technologies AZOM. The Fraunhofer project group at the Dortmunder OberflächenCentrum DOC® is also integrated into the Dresden Institute. The main cooperation partners in the USA include the Center for Coatings and Diamond Technologies (CCD) at Michigan State University in East Lansing and the Center for Laser Applications (CLA) in Plymouth, Michigan. Fraunhofer IWS employs around 450 people at its headquarters in Dresden.

FRAUNHOFER-INSTITUT FÜR WERKSTOFF- UND STRAHLTECHNIK IWS

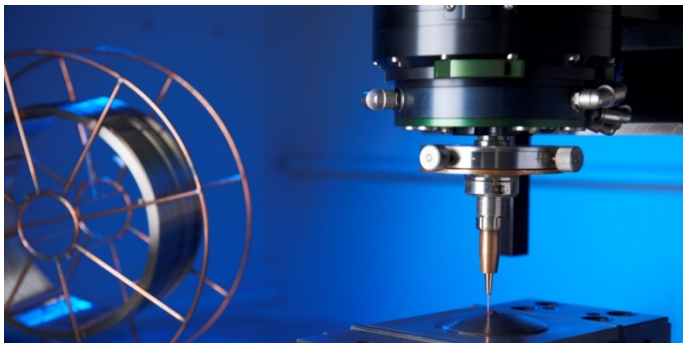


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COAXwire mini enables the fabrication of filigree components by means of fine wires.
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The COAXwire laser processing head can be optionally equipped with hot-wire module.
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