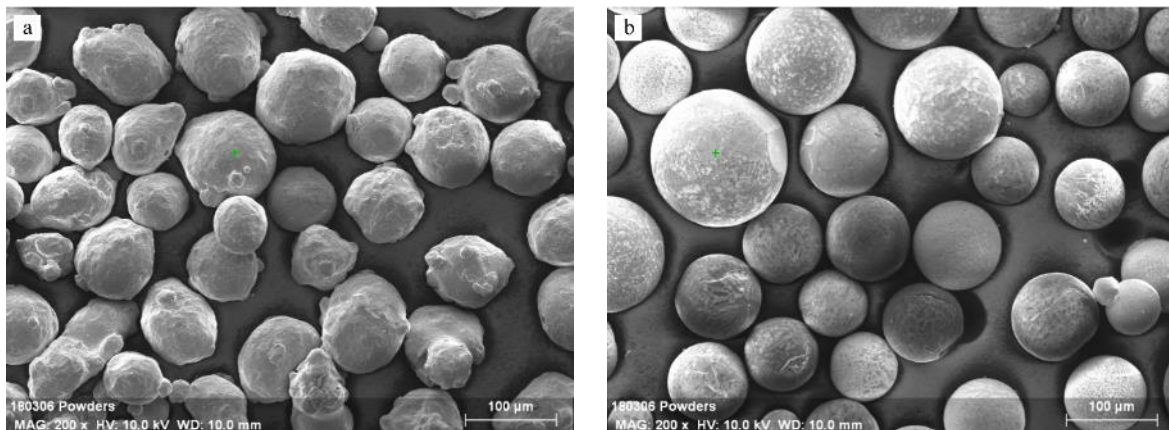


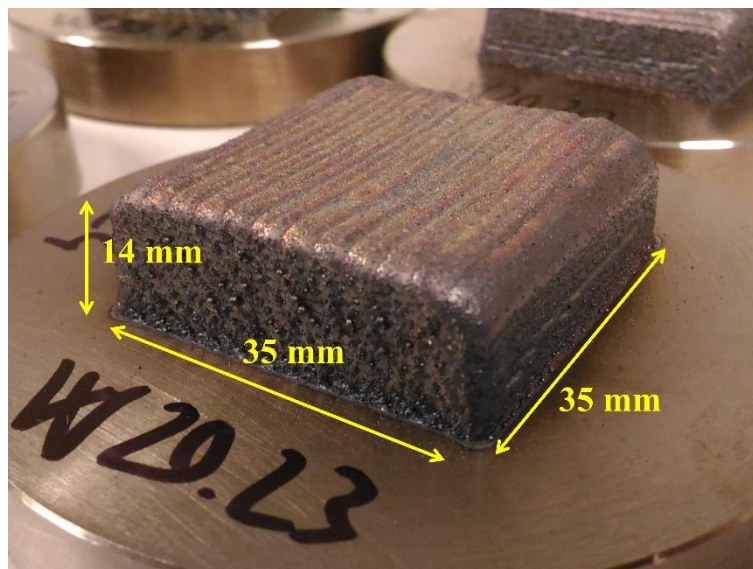
***Appendix A: Raw material (powder feedstock) with spherical-like morphology, DED processing parameters, and DEDED 316L+WC composite sizes within the as-built conditions.***

***Detailed information regarding the DED processing parameters.***

The laser power used to achieve both DEDED reference 316L and DED composites varied between 400 and 570W for a corresponding traverse speed of 270 to 290 mm/min, and a layer thickness set to 600  $\mu\text{m}$ . The stream of powder was focused into the laser beam by an inert gas flow and directed toward the substrate at an angle of 38°–45°.



**Figure A1 :** SEM micrographs of the spherical (a) 316L powders and (b) WC powders used for the DED process. 316L powders may exhibit small satellites, while WC powders are perfectly spherical and some grains are visible on their surface.



**Figure A2 :** Overview of the as-built DEDED 316L + WC composite with its main sizes. The thick DEDED deposited is made of 19 layers using a powder mixture containing 316L as the main component, and 20% in volume fraction of WC carbides as reinforcements.