Influence of workpiece submerging velocity on current and power in plasma electrolytic polishing

Joško Valentinčič[1]*, Henning Zeidler[2], Toni Boettger[2], and Marko Jerman[1]

[1] University of Ljubljana, Faculty of Mechanical Engineering, Aškerčeva 6, 1000 Ljubljana, Slovenia
[2] Technische Universität Bergakademie Freiberg, Chair Additive Manufacturing, Agricolastrasse 1, 09599 Freiberg, Germany
*Correspondence: jv@fs.uni-lj.si

S1: Part of original and filtered signal (v = 400 mm s^{-1})

A Savitzky-Golay smoothing filter was used for filtering the voltage and current signal. A second-degree polynomial function was used and interval of 0.02 ms before and after the observed sample on the signal was the used. The filtered voltage and current signals were used to calculate the power signal.
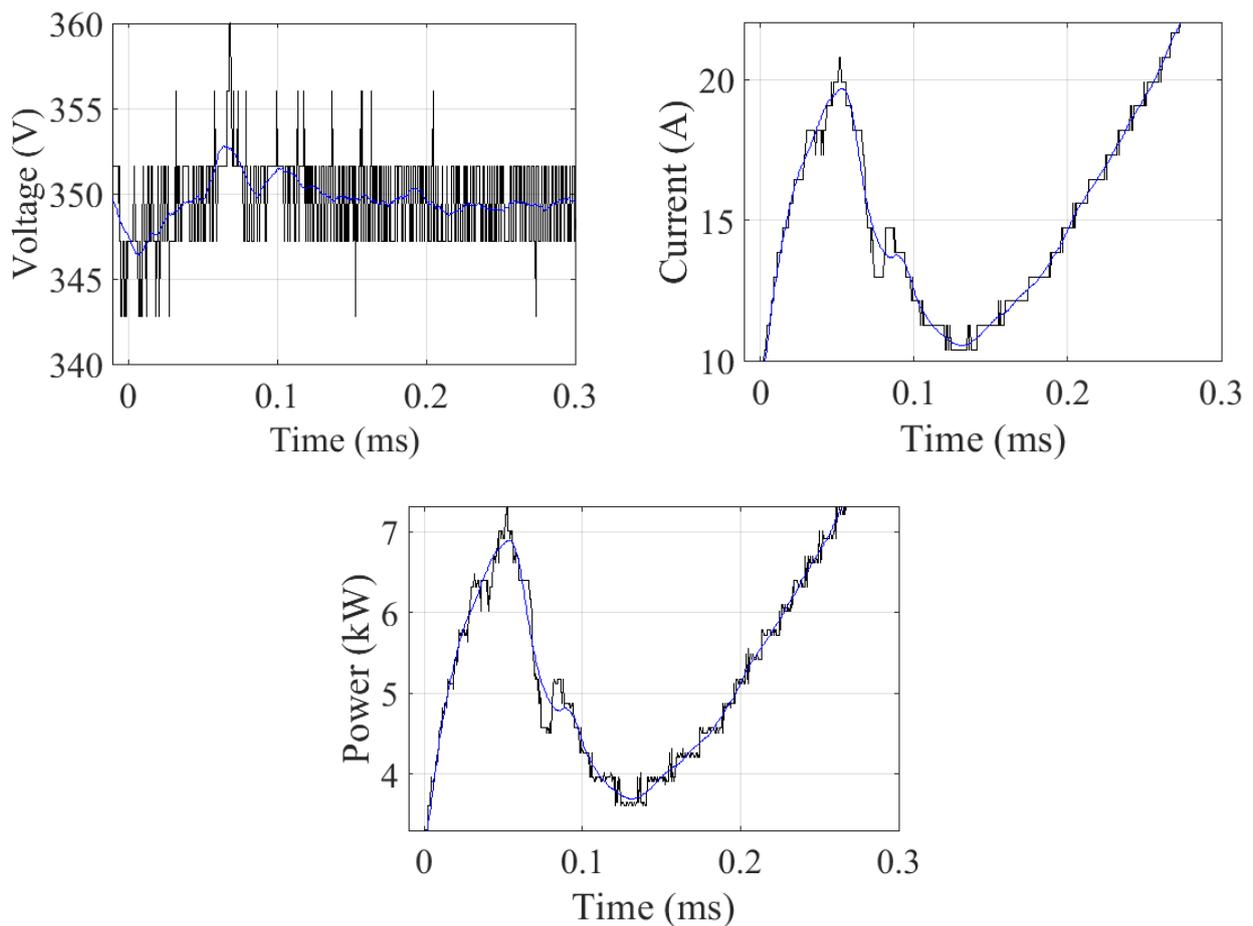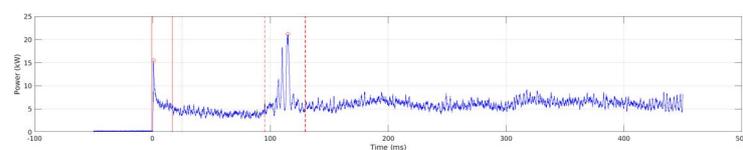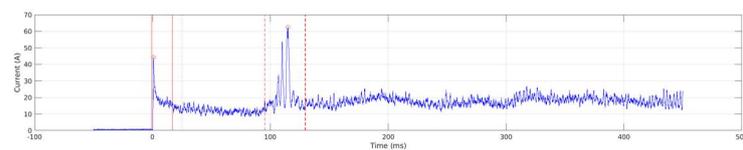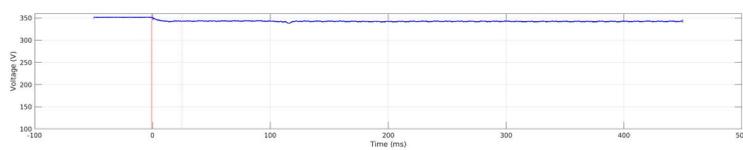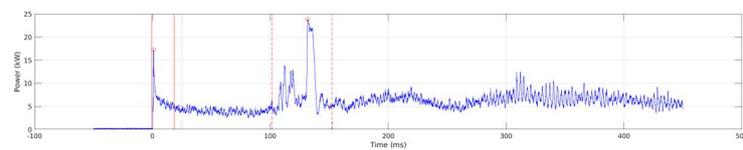
S2: Waveforms acquired when process was initiated with fully submerged workpiece

Three peaks are always present during the process initiation when the workpiece is fully submerged.
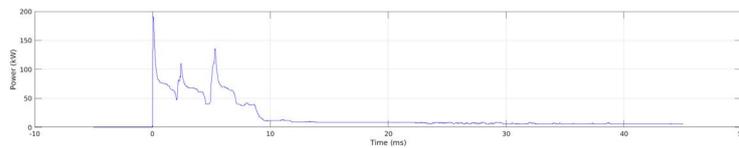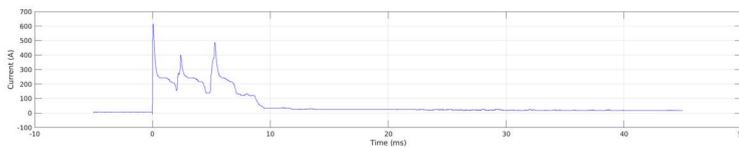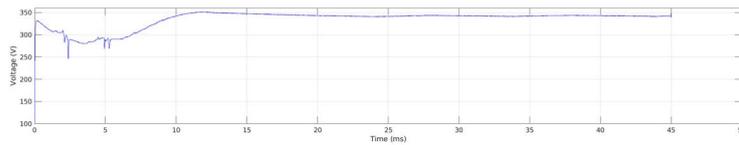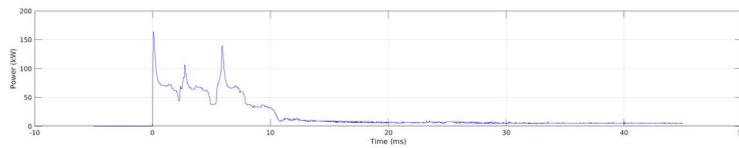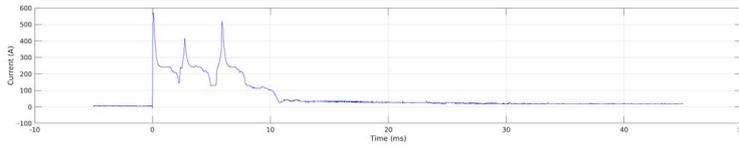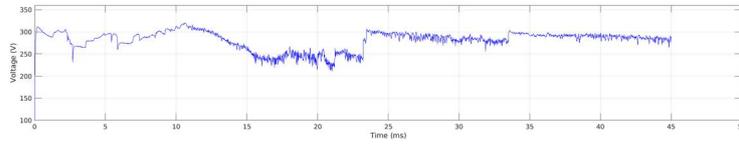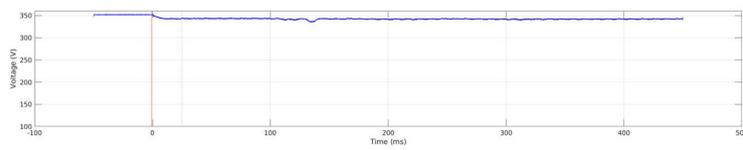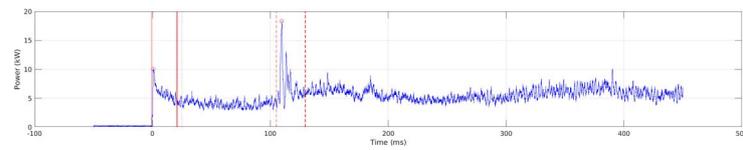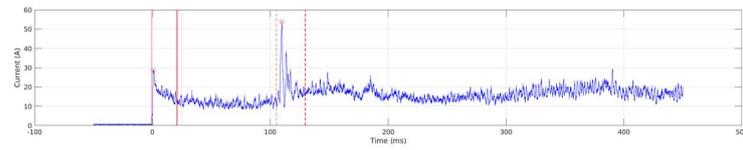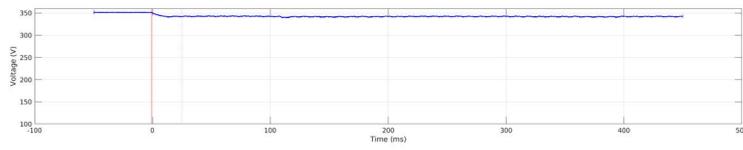
S3: Waveforms acquired when submerging speed was 400 mm s^{-1}

A high level of repeatability is noticed.
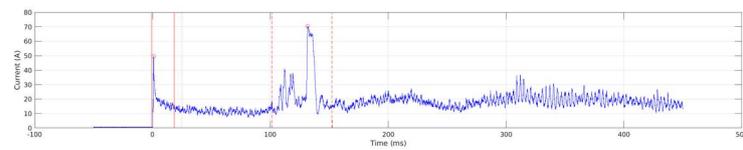
Supporting video

The supporting videos show the submerging at $v=xx$ mm s^{-1}, when the workpiece in in touch with electrolyte and when it is fully submerged.

Repository

The raw and analysed data, videos, scripts and other data are going to be achieved in Zenodo repository in line with the Data management plan of the Horizon Europe SEAMAC project (GA 101079481).