

Abstract Submitted  
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**Efficiency of a flapping propulsion system based on two side-by-side pitching foils**<sup>1</sup> FRANCISCO HUERA-HUARTE, Universitat Rovira i Virgili (URV) — We explore the propulsive performance of two foils flapping side-by-side in a wide variety of configurations, for different foil separations, pitching amplitudes and frequencies and phase differences. Direct force and torque measurements will be shown in each situation, after a thorough parametric study, that led to the identification of highly efficient modes of propulsion. The especially designed experimental rig allowed the computation of efficiencies globally and at each shaft in the system. Planar and volumetric Particle Image Velocimetry (PIV) allowed a detailed description of the wake generated by the system, for each different kinematics investigated. The investigation is part of an ambitious project with the aim of producing a high efficient and highly manoeuvrable flapping propulsion system for underwater vehicles.

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