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Experimental results of harmonically oscillating flexible and rigid flat plates. JEREMY PENA, SCOTT HIGHTOWER, JAMES ALLEN, PAULO FERREIRA DE SOUSA, BANAVARA SHASHIKANTH , New Mexico State University — The thrust produced by high aspect ratio oscillating flexible and rigid flat plates are measured using Particle Image Velocimetry over a range of Strouhal numbers in a the large water channel facility at New Mexico State University. Power input to the system was also measured. Results show that neutral/zero thrust is produced at a Strouhal number of 0.14 for all the plates. The thrust co-efficient for the stiff plates are superior to the flexible ones, however the efficiency of the flexible plates is order twice that of the stiff plates. The reason for this is that the flexible plate are resonating with the fluid.

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