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Computational Investigation of Seal Whisker Models in Tandem MUTHUKUMAR MUTHURAMALINGAM, Weatherford (DPS) Engineered System Support, Mumbai, India, SRIRAM VELUMANI, Eastern Michigan University — Flow over single seal whisker models has been investigated in recent times because of its unique shape to suppress unsteady vortices. In this study, flow over three whisker geometries in tandem arrangement were computationally investigated at a Reynolds number of Re = 630 (based on average of four elliptical diameters D_e) using ANSYS FLUENT 17.1. The spacing was measured between axis of the whisker models and it was varied from $1.64D_e$ to $10D_e$. No considerable difference in drag was found between all three models and the variation of drag with spacing was very similar for all the tandem configurations. For spacing less than $6D_e$ the drag of the upstream model was below isolated whisker drag, reaching its minimum value at spacing of $2.5D_e$ and for larger spacing it was monotonically reaching isolated whisker drag. The drag value of the downstream model was monotonically increasing with increase in separation distance and it reaches about 80% of the isolated Whisker drag. The interference drag is negative for all spacing which results in favourable condition for seals to operate more whiskers in lesser drag.

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