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FSI Simulation of Tilting-Pad Thrust Bearings: Taper variations

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Abstract:

In order to describe the behavior of fluid-film tilting-pad thrust bearings for hydroelectric units, different domains need to be considered. There are solid bodies like the thrust collar and the pad separated by the oil film corresponding to a fluid domain. An accurate simulation of the processes involved requires a fluid structure interaction (FSI) simulation as elastic and thermal deformation of the collar and segments can be larger than the minimal oil film thickness. The corresponding results of such a FSI simulation are compared to measured test rig data. A study of different taper geometries is presented.