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EXPERIENCES WITH FLUTTER VIBRATIONS OF LOW-PRESSURE STEAM TURBINE BLADES

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SUMMARY:

The possibility that flutter may occur within the rotating blades of an LP steam turbine has been recognized for many years, though the number of verified occurrences have been very few. This success has been due to restriction of the condenser operating pressure downstream of the blade rows to below some specified limit prescribed by the manufacturer by turbine operators. The identification of the flutter threshold pressure continues to be an important design consideration.

This paper discusses certain techniques which have been proposed for the identification of this flutter threshold condition, and what the predicted flutter threshold condition may represent in the case of a given predicted flutter condition. Both theoretical and experimental studies which have been made to verify certain flutter thresholds have been considered. The complex nature of flutter, and the many factors which may be involved in a given case are discussed.