

Contents

1. Introduction
2. Erosion Corrosion
 - 2.1 Introduction
 - 2.2 Causes of Erosion-Corrosion
 - 2.3 Evalation of Erosion-Corrosion
 - 2.4 Agreement of Predictions with Measurement
 - 2.5 Conclusion
3. Erosion of LP-Blades
 - 3.1 Introduction
 - 3.2 Causes of Erosion
 - 3.3 Erosion Coefficient
 - 3.4 Examples of Erosion with Different Turbines
 - 3.5 Experience with Erosion on 750 mm-LP-Blades
 - 3.6 Design Principles
 - 3.6.1 Drainage through Slits in Surface of Hollow Stationary Blades
 - 3.6.2 Steam Heated Stationary Blades
 - 3.6.3 Protecting of Leading Edges of Rotating Blades
 - 3.7 Conclusion
4. Overspeed after Maior Load Rejection
 - 4.1 Introduction
 - 4.2 Calculation Method
 - 4.3 Test Results
 - 4.4 Measurements to Prevent Excessive Overspeed
 - 4.4.1 Selection of Overspeed Trip Device
 - 4.4.2 Bypass Valves
 - 4.4.3 Controlled Drainage
 - 4.4.4 Intercept Valves
 - 4.5 Conclusion

Introduction

Most of today's nuclear power stations are operated with light water reactors and thus the design of wet steam turbines is of high interest. Depending on rating and condenser pressure a speed of 50 or 25 s^{-1} respectively 60 or 30 s^{-1} is used for the turbines. A typical longitudinal section of a high speed turbine is shown in Fig. 1.1 and for a low speed application in Fig. 1.2. From the great number of problems which araised about twenty years ago when the first wet steam turbines were designed for light water reactor power stations some shall be treated in this lecture. The selection was made in accordance withe the head line of the two phase flow.