

## Introduction

The development of suitable instrumentation is an important part of the study of wet steam, determining to a large extent the rate at which new knowledge is obtained. The development problems lie in two main categories, the familiar problem of making a measurement without distorting the two-phase flow being measured, and secondly the particular problem of restricted access to the steam-space in a turbine. Both aspects are discussed in the following pages and a range of instrumentation is described for research applications or for performance measurements in operating plant.

## CONTENTS

### 5.1 Notation

### 5.2 Pressure Measurement

1. Water Filled Lines
2. Continuous Purging
3. Intermittent Purging
4. Fluctuating Pressures
5. Turbine Measurements

### 5.3 Temperature Measurement

### 5.4 Velocity Measurement

1. Pitot Interpretation
2. Laser Doppler Anemometers

### 5.5 Unsteady Flow Measurement

### 5.6 Wetness Fraction Measurement

1. Coarse Water
2. Fog fraction by Calibration
3. Fog fraction, absolute methods
4. Selection of an Absolute Method
5. Details of a Heating Probe

### 5.7 Droplet Size Measurement

1. Large Drops
2. Fog Droplets
3. The Extinction Method
4. Experimental Equipment