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Bibliography of Hot-Wire-Film Anemometry in Liquids

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BIBLIOGRAPHY OF HOT WIRE/FILM ANEMOMETRY IN LIQUIDS

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INTRODUCTION

It is not a new idea to use heat transfer from a hot sensor in a fluid stream to measure velocity and turbulence. This was done as long ago as 1909 by Mr. Kenelly, but a systematic study was not followed through until 1914 by L. V. King. After this followed a series of dedicated people, some students, some professors, some scientists, who continually advanced the state of the art of anemometry in liquids. This paper deals with their work in the areas of electronics (integrated circuits) and physics (thin film technology), and shows how, in time, these two areas conveniently overlapped. Each area made its contribution in the advancement of theory and experimental techniques. These contributions advanced the state of the art to the point where the science of anemometry is now involved in such diverse fields as ecology, rheology, biology, oceanography, space engineering and cloud physics.

While the earliest reference on anemometry is more than fifty years old, most of the work on liquid turbulence has been done during the past eight years. The following is a chronological list of these references, classified from the standpoint of their content being: (1) theoretical, (2) experimental data, or (3) experimental techniques:

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The above list of references may be of help to those searching the literature in selecting that material which is of particular interest and, at the same time, save valuable time in eliminating those which would not be of

interest. This is a dynamic, new field, still in its infancy. Because of this much is written about it every day by those persons who are engaged in exploring the uses of anemometry - its limitations and its possibilities.

The above list represents perhaps half of the available information on anemometry in liquids. There are many people who have contributed significantly to the field who are not mentioned here.