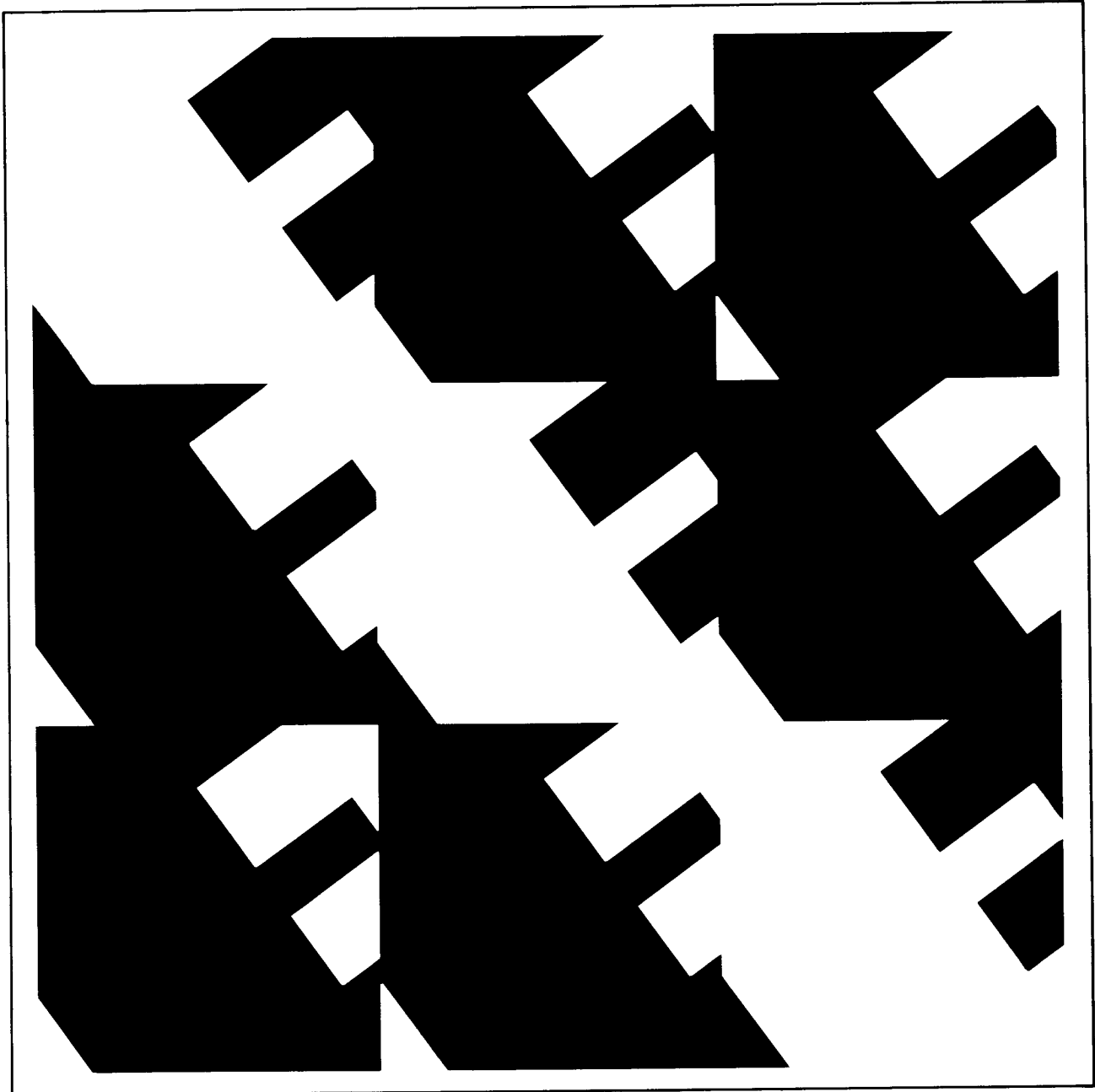


IEEE Recommended Practice: Definitions of Basic Per-Unit Quantities for AC Rotating Machines



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Sponsor

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Foreword

(This Foreword is not a part of IEEE Std 86-1987, IEEE Recommended Practice: Definitions of Basic Per-Unit Quantities for AC Rotating Machines.)

When machine parameters are expressed in a properly selected per-unit system, the parameters of a wide range of machine sizes fall into relatively narrow ranges even though the actual values of these same parameters may vary over extremely wide ranges. The per-unit system thereby makes possible an easy comparison between different machines, essentially independent of size, without the use of conversion factors, and facilitates the identification of gross calculation errors.

The proper selection of base values is fundamental to the usefulness of a per-unit system. Although per-unit quantities have been used for many years by designers of rotating machinery, the base quantities were not standardized, and it was necessary to define them in each publication. A working group of the Rotating Machinery Committee was created to propose a set of standard definitions. In 1961, a proposed standard (AIEE No. 86) was published for trial use. A critical review of that proposed standard resulted in ANSI/IEEE Std 86-1975. Recently, systems analysts and some designers of rotating electrical machinery have found it useful to have a single generic model for all types of machines. Therefore, alternate per-unit definitions, using input voltamperes as base power for induction motors, have been included in this new revision, as well as an example of an induction generator.

The members of the working group responsible for this revision were as follows:

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