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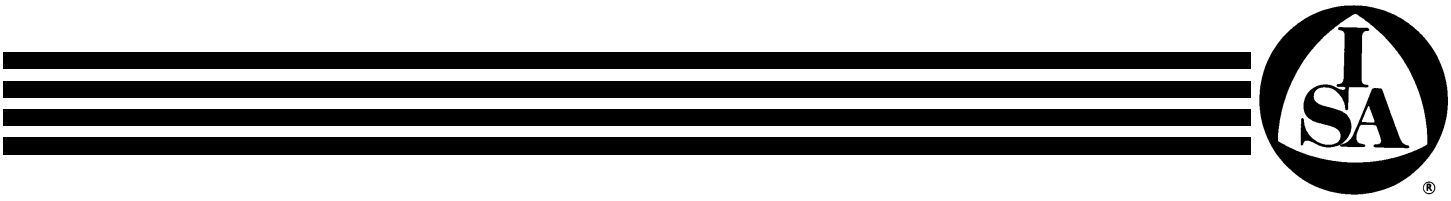
Approved September 29, 1995

Standard

Specifications and Tests for Strain Gage Force Transducers



ISA-S37.8 — Specifications and Tests for Strain Gage Force Transducers

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Preface

This preface, as well as all footnotes and annexes, is included for informational purposes and is not part of ISA-S37.8.

This Standard has been prepared as a part of the service of ISA, the international society for measurement and control, toward a goal of uniformity in the field of instrumentation. To be of real value, this document should not be static but should be subject to periodic review. Toward this end, the Society welcomes all comments and criticisms and asks that they be addressed to the Secretary, Standards and Practices Board; ISA; 67 Alexander Drive; P.O. Box 12277; Research Triangle Park, NC 27709; Telephone: (919) 549-8411; Fax: (919) 549-8288; E-mail: standards@isa.org.

The ISA Standards and Practices Department is aware of the growing need for attention to the metric system of units in general, and the International System of Units (SI) in particular, in the preparation of instrumentation standards, recommended practices, and technical reports. The Department is further aware of the benefits to USA users of ISA Standards of incorporating suitable references to the SI (and the metric system) in their business and professional dealings with other countries. Towards this end, this Department will endeavor to introduce SI and acceptable metric units in all new and revised standards to the greatest extent possible. *The Metric Practice Guide*, which has been published by the Institute of Electrical and Electronics Engineers as ANSI/IEEE Std. 268-1992, and future revisions, will be the reference guide for definitions, symbols, abbreviations, and conversion factors.

It is the policy of ISA to encourage and welcome the participation of all concerned individuals and interests in the development of ISA standards, recommended practices, and technical reports. Participation in the ISA standards making process by an individual in no way constitutes endorsement by the employer of that individual, of the ISA, or of any of the standards which ISA develops.

This Standard is intended as a guide for technical personnel at user facilities as well as by manufacturers' technical and sales personnel whose duties include specifying, calibrating, testing, or showing performance characteristics of strain-gage linear accelerometers. By basing users' specifications as well as technical advertising and reference literature on this Standard, or by referencing portions thereof, as applicable, a clear understanding of the users' needs or of the transducers' performance capabilities, and of the methods used for evaluating or proving performance, will be provided. Adhering to the specification outline, terminology and procedures shown will not only result in simple, but also complete specifications; it will also reduce design time, procurement lead time, and labor, as well as material costs. Of major importance will be the reduction of qualification tests resulting from use of a commonly accepted test procedure and uniform data presentation.

The development of this Standard was initiated as the result of a survey conducted in December 1960. A total of 240 questionnaires was sent out to transducer users and manufacturers. A strong majority indicated in their replies a need for transducer standardization. As strain-gage force transducers were one of the types shown to be most in need of standardization, a Subcommittee, SP37.8, was formed. To provide a coordinated document, this committee was composed of representatives from government, user and manufacturer categories. This Standard was then processed over several mail-review and revision cycles until a consensus of reviewers was reached.

The following individuals served on the 1975 SP37.8 committee:

NAME	COMPANY
J. J. Elengo, Jr. Chairman	Revere Corporation of America
P. F. Fuselier	Lawrence Radiation Laboratory
R. E. Gorton	Pratt & Whitney Aircraft
H. E. Lockery	Consulting Engineer
H. W. Rosenburg	Naval Weapons Center
G. W. Godwin	Howe Richardson Scale Company

The following individuals served on the ISA Committee SP37, who reaffirmed ISA-S37.8 in 1995:

NAME	COMPANY
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This standard was reaffirmed by the ISA Standards and Practices Board on September 29, 1995.

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G. Wood	Graeme Wood Consulting
M. Zielinski	Fisher•Rosemount

Contents

1 Scope

1.1 This standard covers strain-gage force transducers, primarily those used in measurement systems.

1.2 Included among the specific versions of strain-gage force transducers, to which this Standard is applicable, are the following:

Tension Transducers

Compression Transducers

Universal (Combination Compression and Tension) Transducers

1.3 Terminology used in this document is defined either herein or in ISA-S37.1, *Electrical Transducer Nomenclature and Terminology*.

2 Purpose

This standard establishes the following for strain-gage force transducers.

2.1 Uniform general specifications for design and performance characteristics

2.2 Uniform acceptance and qualification test methods, including calibration techniques

2.3 Uniform presentation of test data

2.4 A drawing symbol for use in electrical schematics

3 Drawing symbol

The drawing symbol for a strain-gage transducer is a square of dimensions 2x by 2x, with an added equilateral triangle, the base of which is the left side of the square. The triangle symbolizes the sensing element. The letter "F" in the triangle designates "force", and the additional sub-positioned letters denote the second modifier.