

**Modular component interfaces
for surface-mount fluid distribution
components –**

**Part 1:
Elastomeric seals**

PUBLICLY AVAILABLE SPECIFICATION



INTERNATIONAL
ELECTROTECHNICAL
COMMISSION



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**Modular Component
Interfaces for Surface-
Mount Fluid Distribution
Components - Part 1:
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**ISA—The Instrumentation,
Systems, and
Automation Society**

Approved 13 June 2002

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The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document:

Draft PAS	Report on voting
65D/99/PAS	65D/102/RVD

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1 Scope

This standard applies to all types of surface-mount fluid distribution components with elastomeric sealing devices used within process analyzer and sample-handling systems. This includes components such as valves, filters, regulators, transducers, and controllers.

The scope of this document is limited as follows:

- a) This document addresses only surface-mount fluid distribution components and proper sealing methods. This document is limited to sealing methods using elastomeric material for the seals.
- b) The designs of the actual system components and the flow substrate are not specified in this standard. Any indication of mounting direction or other indexing is left to the manufacturer as required for its equipment.
- c) Users shall be aware that, based on the stream conditions of their processes, other technologies and components may be readily available.
- d) This standard does not address the effects of various stream conditions on the technical functionality of the component.
- e) This standard does not address maintenance concerns for the components.
- f) This standard does not refer to design issues pertaining to specific safety requirements. These issues shall be referenced to other standards, organizations, and recommended guidelines.
- g) International, national, and local codes, regulations, and laws shall be consulted to ensure that each component meets the user's regulatory requirements.

2 Purpose

This document establishes properties and physical dimensions that define the interface for surface-mount fluid distribution components with elastomeric sealing devices used within process analyzer and sample-handling systems. The interface controls the dimensions and location of the sealing surfaces to allow change of just one element of the system without modification of the entire system. This is what makes the system modular from both a design and a maintenance standpoint.

3 Definitions

- 3.1 modular interface:
the boundary between an independently operable part of a flow system and the flow substrate to which it is connected.
- 3.2 surface finish:
the final surface specifications of the substrate block, interface plate, sealing grooves, and seal devices.
- 3.3 surface mount:
the arrangement of independent flow conditioning system modules upon a defined flow substrate.

4 References

At the time of publication, the editions indicated in this clause were valid. All standards are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in this clause. Members of the IEC and

ISO maintain registers of currently valid International Standards. ANSI maintains registers of currently valid U.S. National Standards.

- a) ASME Y14.5M (reaffirmed 1999), Dimensioning and Tolerancing
- b) ISO 4288:1996, Geometrical Products Specification (GPS) – Surface Texture: Profile Method – Rules and Procedures for the Assessment of Surface Texture.

5 Ordering components with the modular interface

This document may be used when specifying systems employing this modular component design. It conveys the concept of the modular system and provides “footprint” dimensions to permit interchangeability of components.

Purchase specifications for components in accordance with this document shall include the standard number, date of issue, and references to the correct figure number.

6 Material requirements

6.1 Material certifications

Material certifications shall be obtained and shall include chemical analysis and mechanical properties. For materials ordered to specifications that do not include mechanical properties, the manufacturer shall specify minimum mechanical properties.

6.2 Bolt torque requirements

To ensure the performance of these systems, users are cautioned to adhere to bolt torque requirements as specified by the manufacturer.

7 Sealing surface requirements

7.1 Surface roughness

The sealing surface (flat surface of the bottom of the mounting flange) shall have a maximum surface roughness of 0.8 micrometers (32 microinch) Ra max. in the area required for sealing.

7.2 Surface condition

The sealing surface shall not have any radial scratches in the area required for sealing that are visible to non-magnified normal vision.

7.3 Area required for sealing

The area required for sealing shall be defined as a surface with a diameter of 8.0 mm, with its center coincident with each required pressure connection.

8 Dimensional requirements

Surface-mount fluid distribution components designed to span multiple positions, regardless of function, shall be dimensioned to interface with:

- a) the 38.2-mm (1.5-inch) footprint, spaced on 38.9-mm (1.53-inch) centerlines, with flow and bolt locations positionally toleranced to the same numeric values as a single position component (see Figure 1); or
- b) the 57.2-mm (2.25-inch) footprint, spaced on 58.0-mm (2.28-inch) centerlines, with flow and bolt locations positionally toleranced to the same numeric values as a single position component (see Figure 2).

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