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AN INDUSTRY STANDARD FOR FLUID POWER

Cavity dimensions for fluid power exclusion devices (inch series)

(Redesignation of ANSI/B93.35M-1978)

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FOREWORD

This Foreword is not part of Fluid Power Exclusion Devices (Inch Series),

The NFPA Sealing Devices Section proposed the adoption of standards for exclusion devices in October 1970, based on the interest expressed by a survey of seal manufacturers.

Subsequent evaluation of exclusion device designs which prevailed at the time imposed a limiting factor on adoption of a universal standard, and led to the consideration of cavity design to accommodate the variety.

Draft No. 1 of T3.19.7-1972 was prepared on 3 May 1971 and proceeded through an additional three drafts before being approved by the NFPA Board of Directors on 12 November 1972.

On 14 June 1974, NFPA Headquarters received a letter requesting the initiation of a revision to NFPA/T3.19.7-1972. The purpose of the proposed revision was to correct a design discrepancy relative to Table 3 dimensions for diameters of retaining lips for heavy section exclusion devices. The TSP for this project, which was prepared by the NFPA Technical Staff on 27 August 1974, was approved by the Technical Board on 18 September 1974. On 26 March 1975, the Project Group reached consensus on the revised retaining lip heights and forwarded a Final Working Draft to NFPA Headquarters. The Sealing Devices Section reviewed the Final Working Draft on 16 April 1975 and recommended that it be circulated for General Review.

The NFPA Technical Staff prepared the General Review Draft on 4 August 1975. No negative comments were received during General Review. Approval to Ballot was granted by the Technical Board on 5 November 1975. The NFPA Technical Staff prepared the Ballot Draft on 13 November 1975. No negative ballots were received on the document.

The document was submitted to the Technical Board on 4 February 1976. The Board withheld recommendation for final approval until the NFPA Cylinder, Hydraulic Valve, and Pneumatic Valve Sections had had the opportunity to study and comment on the document. None of the Sections submitted negative comments on the document; consequently, the Technical Board recommended final approval on 10 November 1976. The NFPA Board of Directors granted final approval to NFPA/T3.19.7 R1-1976 on 14 December 1976.

Members of the NFPA Project Group which developed this standard are listed on page 4.

PROJECT GROUP MEMBERS WHO DEVELOPED THIS STANDARD

Berg, Thorval	Project Chairman and Section Vice Chairman	Greene, Tweed & Co.
McMillen, Ike	Section Chairman	Garlock, Inc.
Thrane, Gordon	Section Secretary	Hercules Products
Wolf, Peter	Technical Auditor	Eaton Corporation
Luecke, John R.	Director of National Technical Services	National Fluid Power Association*
Beck, G.		Parker Packing Co.
Jorin, T.		Grover Piston Ring Co.

* Company affiliation has changed since work with the Project Group

REFERENCES

1. Society of Automotive Engineers Guide to Application and Use of Radial Lip Type Oil Seals, SAE/J956-1968; also published in the Rubber Manufacturers Association Oil Seal Standards-1964.

2. Military Standard MS-33675 for Corresponding Dash Numbers of MS-28776. (Supercedes Army-Navy 6231)

3. American National Standard Glossary of Terms for Fluid Power, ANSI/B93.2-1971, and Supplement ANSI/B93.2A-1978. (ISO/DP 5598)

4. SI units and recommendations for the use of their multiples and of certain other units, ISO 1000-1973.

5. Toleranced dimensions - Conversion from inches into millimetres and vice-versa, ISO 370-1975.

BACKGROUND REFERENCE

1. American National Standard Uniform Dash Numbering System for O-Rings, ANSI/B134.1-1971. (See Note below.)

NOTE REGARDING BACKGROUND REFERENCE

The O-Ring Identification Numbers in Table 2 are for background information only using ANSI/B134.1, *Uniform Dash Numbering System for O-Rings.* Each AN Series exclusion device Dash Number may be used on same rod diameter as any of the corresponding O-Ring Dash Numbers.

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CAVITY DIMENSIONS FOR FLUID POWER EXCLUSION DEVICES (INCH SERIES)

INTRODUCTION

In fluid power systems, power is transmitted and controlled thru a fluid (liquid or gas) under pressure within an enclosed circuit. Exclusion devices protect the sealing devices which contain the pressurized fluid within components with moving parts.

The dimensions given in this recommended standard, while providing the necessary basis for standardization in the manufacture of the exclusion device cavity and application of exclusion devices, are not to be regarded as providing all the information required for design purposes.

1. SCOPE

1.1 To include dimensions for the cavity into which clearance-type and press-type exclusion devices are installed.

NOTE: The range of sizes is dependent on design of the exclusion device for which popular categories are defined in Reference No. 1 and Reference No. 2. Heavy section exclusion devices in Table 3 parallel Reference No. 2's rod sizes but have larger cross sections and widths.

1.2 The manner of construction of the exclusion device varies with each manufacturer and no attempt is made to present the details of the design.

1.3 The exact degree of interference or clearance between the exclusion device and its cavity is a characteristic related to the design of the exclusion device. Therefore, this recommended standard does not specify limits on the unit.

2. PURPOSE

2.1 To promote interchangeability and simplification with a minimum number of series of cavity dimensions.

2.2 To provide a guide for the designer and user of exclusion devices.

3. TERMS AND DEFINITIONS

For definitions of terms used, see Reference No. 3.