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Groove dimensions for floating type metallic and non-metallic fluid power piston rings

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Descriptors: fluid power piston ring groove dimensions

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Piston Ring Groove Dimensions

FOREWORD

(This Foreword is not part of Groove
Dimensions for Floating Type Metallic and Non-Metallic Fluid Power
Piston Rings,

A meeting of the Sealing Devices Section was held on 3 February 1971. The importance of continuing efforts to establish standards of design in hydraulics was discussed, particularly due to pressure to establish standards acceptable to American manufacturers and to ISO. It was agreed that a study be made of the feasibility of establishing a standard for groove dimensions for floating type piston rings used in pumps, cylinders and valves. This type of ring includes metallic and non-metallic rings, both split and endless which are installed either with or without metallic internal expanding rings.

The "inch series" draft was prepared on 5 May 1971. At a meeting on 19 May 1971, that draft was reviewed. Modifications were made to the title and it was recommended that this document consider only the floating type piston rings. Additional names were also added to the Project Group. It was judged that a consensus existed and the Chairman was requested to prepare a General Review Draft.

The General Review Draft for Inch Series Rings was prepared on 1 October 1971. Following the General Review an Exact Metric Translation Draft was completed on 7 December 1971. The Ballot Draft was prepared on 21 March 1972 and the balloting closed on 13 July 1972.

The NFPA Technical Board recommended the document to the Board of Directors on 27 September 1972. The NFPA Board of Directors approved this document as NFPA Recommended Standard T3.19.11-1972 on 12 November 1972.

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

Piston Ring Groove Dimensions

Members of the NFPA Project Group responsible for the development of this standard included:

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* Company affiliation has changed since work with the Project Group.

This is a preview of "NFPA/T3.19.11-1973 (...". [Click here to purchase the full version from the ANSI store.](#)

Piston Ring Groove Dimensions

REFERENCES

1. American National Standard Glossary of Terms for Fluid Power, ANSI/B93.2-1971, and Supplements thereto. (ISO/TC 131/SC 1 (USA-2) 3)
2. SI units and recommendations for the use of their multiples and of certain other units, ISO 1000-1973.

BACKGROUND REFERENCES

1. American National Standard Dimension Identification Code for Fluid Power Cylinders, ANSI/B93.1-1970.
2. American National Standard Bore and Rod Size Combinations and Rod End Configurations for Cataloged Square Head Industrial Fluid Power Cylinders, ANSI/B93.8-1968.

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Piston Ring Groove Dimensions

GROOVE DIMENSIONS FOR FLOATING TYPE METALLIC AND NON-METALLIC FLUID POWER PISTON RINGS

INTRODUCTION

In fluid power systems, power is transmitted and controlled thru a fluid (liquid or gas) under pressure within an enclosed circuit. A piston ring is a sealing device installed on a piston to maintain a sealing fit with a cylinder bore. It is usually one of a series and is often split to facilitate expansion or contraction.

The type of piston ring covered in this proposal floats in the seal cavity and makes sealing contact on the side faces and outer surface only. Radial clearance must be provided between the groove diameter and the inner surface of the piston ring.

1. SCOPE

To include groove dimensions, tolerances and surface finish conditions for satisfactory performance of floating type piston rings in cylinders, pumps, and valves.

2. PURPOSE

- 2.1 To establish uniform guidelines to designers for correct design of piston ring grooves to insure proper performance of floating type piston rings.
- 2.2 To insure interchangeability of floating type piston rings without regard for material.
- 2.3 To provide an adequate listing of preferred ring groove widths.

3. TERMS AND DEFINITIONS

(For definition of terms used, see Reference No. 1.)