



**ANSI/B93.3-1984 (R2004)**

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## Fluid power systems and products – Cylinder bores and piston rod diameters – Inch series

(Revision and redesignation of NFPA/T3.6.1 R1-1983)

### **A NATIONAL INDUSTRY STANDARD FOR FLUID POWER**

Approved by Committee ASC B93,  
accredited by the American National Standards Institute (ANSI)



Descriptors: fluid power cylinder, cylinder bores, cylinder; piston rod diameters, piston rod

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Developed and published by

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Suggestions for improvement gained in the use of this standard will be welcome. They should be sent to the National Fluid Power Association, 3333 North Mayfair Road, Milwaukee, WI 53222-3219.

Any part of this standard may be quoted. Credit lines should read: Extracted from the national industry standard ***Fluid power systems and products – Cylinder bores and piston rod diameters – Inch series, ANSI/B93.3-1984 (R2004).***

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This Foreword is not part of American National Standard Fluid power systems and products - Cylinder bores and piston rod diameters - Inch series, ANSI/B93.3-1984 (Revision to ANSI/B93.3-1973 [R1979])

In 1959, after several years of intensive research and surveying, the NFPA Cylinder Section developed a listing of commonly available cylinder bore and piston rod sizes for fluid power cylinders. The draft was approved as NFPA Recommended Standard T3.3.1-1959

Subsequent revisions were made to the document with the addition of three bore sizes. In 1965, the updated NFPA Recommended Standard T3.6.1-1965 was approved as an American Standards Association (hence changed to the United States Standards Institute and presently known as American National Standards Institute) Standard B93.3-1965.

Another revision was incorporated with the addition of a piston rod diameter. As a consequence, NFPA/T3.6.1-1968 (revision of B93.3-1965) was approved on 12 January 1968. This document was reaffirmed in 1973 and 1979.

Upon the recommendation to bring this document in harmony with the comparable ISO document (ISO 3321), a revision was initiated on 14 April 1981 (rescinding NFPA/T3.6.3.4 as a revision to ANSI/B93.3). Approval of the TSP was granted by the NFPA Technical Board on 13 May 1981. The revision was to add one more bore and rod size to the document.

Upon completion of the revision, it was the intent of the Project Group to submit the document to ANSI Committee B93 as a revision of ANSI/B93.3. Subsequently, it is to be submitted to the USA TAG/SC 3 to revise ISO 3321, this bringing all documents (NFPA, ANSI & ISO) into harmony.

Headquarters Technical Staff prepared the document for General Review on 19 June 1981. General Review closed 20 July 1981. Chairman Knable reported to the T3.6 Cylinder Section on 21 October 1981 that six comments had been received.

On 23 March 1982 at the T3.6 Cylinder Section meeting Chairman Knable reported comments received had been reviewed and resolved. The Technical Board granted approval to ballot on 26 May 1982.

The Ballot Draft was prepared by Headquarters Technical Staff on 17 September 1982. Successful ballot closed on 15 October 1982.

The NFPA Technical Board granted approval to the document at their 2 February 1983 meeting. NFPA/T3.6.1 R1 was forwarded to and granted final approval by the Board of Directors on 27 February 1983.

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Consequently, the document was forwarded to ANSI Board of Standards Review whereupon it was granted approval on 7 August 1984.

The membership roster of Standards Committee B93 at the time of ballot:

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On 27 May 2004, ANSI/B93.3-1984 (R1997) was submitted to ANSI Committee B93 for ballot to reaffirm the document. Balloting closed on 12 July 2004 with no negative comments.

ANSI/B93.3-1984 (R2004) was approved by ANSI's Board of Standards Review on 15 December 2004.

The membership roster of Standards Committee B93 at the time of ballot:

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## Fluid power systems and products - Cylinder bores and piston rod diameters - Inch series

### 0 INTRODUCTION

In fluid power systems, power is transmitted and controlled through a fluid (liquid or gas) under pressure within an enclosed circuit.

One component of such systems is the fluid power cylinder. This is a device which converts power into linear mechanical force and motion. It consists of a movable element, i.e., a piston and piston rod, operating within a cylindrical bore.

This National Standard is one of two relating to fluid power cylinder bores and piston rod diameters. The other, relating to a metric series is ANSI/B93.52M, Fluid power systems and products - Cylinder bores and piston rod diameters - Metric series.

### 1 SCOPE AND FIELD OF APPLICATION

This National Standard is intended to establish an inch series of cylinder bores and piston rod diameters for application to hydraulic and pneumatic fluid power cylinders.

### 2 REFERENCES

ANSI/B93.2-1971 and Supplement ANSI/B93.2A-1978. **American National Standard Glossary of Terms for Fluid Power.**

### 3 TERMS AND DEFINITIONS

For definitions of terms not defined, see ANSI/B93.2 and ANSI/B93.2A.

**3.1 cylinder bore:** The internal diameter of the cylinder

**3.2 piston rod:** The element transmitting mechanical force and motion from the piston

### 4 DIMENSIONS

4.1 Refer to the figure for identification of bore and rod dimensions

4.2 Select cylinder bores and piston rod diameters from the dimensions shown in table 1 and table 2

### 5 IDENTIFICATION STATEMENT

Use the following statement in test reports, catalogs and sales literature when electing to comply with this National Standard.

"Cylinder bores and piston rod diameters selected in accordance with ANSI/B93.3-1984, Fluid power systems and products - Cylinder bores and rod diameters - Inch series."