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**NFPA Recommended Standard
NFPA/T3.6.11 R1-1998 (R2004)**

**Second edition
13 August 1998**

AN INDUSTRY STANDARD FOR FLUID POWER

**Fluid power systems and components –
Cylinder bore and rod size combinations –
Rod end configurations, dimensional identification code –
Mounting dimensions for bore sizes less than 1 ½ inch bore
cataloged square head tie rod type**

(Revision of ANSI/B93.34-1973)

Descriptors: bore size configuration; cylinder bore size; cylinder rod size; dimensional identification code; fluid power cylinders; mounting dimensions; rod end configurations

PUBLISHED BY

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Printed in the USA

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Foreword

This Foreword is not part of National Fluid Power Association Standard *Fluid power systems and components — Cylinders bore and rod size combinations — Rod end configurations, dimensional identification code — Mounting dimensions for bore sizes less than 1 1/2 inch bore cataloged square head tie rod type*, NFPA/T3.6.11 R1-1998 (Revision of ANSI/B93.34-1973).

At the 15 November 1993 meeting of the NFPA Cylinder Section it was recommended that this standard should be revised. Charles Woodin (Milwaukee Cylinder) agreed to serve as Project Chairman. NFPA Technical Staff prepared Draft No. 1 on 12 December 1994. The draft was sent to Project Chairman Woodin for his review.

NFPA Headquarters received an updated document on 3 September 1996. Draft No. 2, was distributed for review at the 18 September 1996 meeting of T3.6. At the 12 February 1997 T3.6 meeting it was agreed to send the document out for General Review.

The document was sent out for General Review on 18 April 1997. The General Review closed with comments from three companies. The three commentators signed off on their comments by 6 November 1997 when T3.6 was balloted by mail for approval to send the document to the Technical Board for approval to Ballot.

At the 4 December 1997 Technical Board meeting this document was granted approval to ballot. The document was sent out for Ballot on 17 March 1998. The Ballot closed 17 April 1998 with no comments. The Technical Board granted final approval to this document on 13 August 1998.

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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 a system is the fluid power cylinder. This is a device that converts power into linear mechanical force and motion. It consists of a movable element, such as a piston and piston rod, plunger, or ram operating within a cylindrical bore.

The square head cylinder is a specific design initially developed for industrial (in plant) use. It is manufactured and sold as an interchangeable component by a majority of suppliers. Recognition of this interchangeability is one of the purposes of this document.

This is a preview of "NFPA/T3.6.11 R1-1998...". [Click here to purchase the full version from the ANSI store.](#)

Fluid power systems and components — Cylinders bore and rod size combinations — Rod end configurations, dimensional identification code — Mounting dimensions for bore sizes less than 1 1/2 inch bore cataloged square head tie rod type

1 Scope

This standard will include the following for cataloged square head tie rod type industrial fluid power cylinders (pneumatic and hydraulic) with bore sizes less than 1.5 in (38.1 mm) diameter:

- recommended bore sizes;
- recommended rod sizes;
- recommended bore and rod size combinations and rod end configurations;
- recommended dimensional identification code;
- recommended mounting dimensions.

This standard will provide greater use and understanding of fluid power cylinders through recognizing, generating and insuring the maximum of standardization and interchangeability.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this document. At the time of publication, the editions indicated were valid. All documents 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 documents indicated below. NFPA maintains registers of currently valid NFPA/ANSI standards.

ANSI/B93.1-1964, *Dimension identification code for fluid power cylinders.*

ANSI/B93.2-1986, *Fluid power systems and products — Glossary.*

ANSI/B93.3-1984, *Fluid power systems and products — Cylinder bores and piston rod diameters — Inch series.*

ANSI/B93.8-1968, *Bore and rod size combinations and rod end configurations for cataloged square head industrial fluid power cylinders.*

ANSI/ASME/B1.1-1989, *Unified inch screw threads.*

ANSI/IEEE 268-1992, *Metric Practice.*

ISO 370:1975, *Toleranced dimensions — Conversion from inches into millimetres and vice versa.*

ISO 1000:1992, *SI units and recommendations for the use of their multiples and of certain other units.*