



NFPA Recommended Standard
NFPA/T3.6.7 R3-2009 (R2017)
Fourth edition
8 January 2009

AN INDUSTRY STANDARD FOR FLUID POWER

**Fluid power systems and products –
Square head industrial cylinders –
Mounting dimensions**

[Revision and redesignation of ANSI/(NFPA)T3.6.7 R2-1996 (R2004)]

Descriptors: cylinder, industrial fluid power; cylinder, mounting dimensions; cylinder, square head; mounting dimensions, cylinder; cap rectangular mounting dimension cylinder; cylinder, hydraulic fluid power; cylinder, square head industrial fluid power; dimensions, cylinder; fluid power; industrial cylinder mounting dimensions

published by

NATIONAL FLUID POWER ASSOCIATION, INC.

6737 W. Washington St. Ste. 2350 / Milwaukee, WI 53214 USA
PHONE: +1 414 778 3344 / FAX: +1 414 778 3361 / E-mail: nfpa@nfpa.com

Copyright 2009 by the

NATIONAL FLUID POWER ASSOCIATION

All standards, recommended practices, information reports, and bibliographies (collectively, "NFPA Documents") are advisory only. Use thereof by anyone for any purpose is entirely voluntary and in any event without risk of any nature to the National Fluid Power Association (NFPA), its officers, directors or authors of such work. There is no agreement by or between anyone to adhere to any NFPA Document. In formulating and approving NFPA Documents, NFPA and/or its councils and committees will not investigate or consider citations, references or patents which may or may not apply to such subject matter since prospective users of such NFPA Documents alone are responsible for establishing necessary safeguards in connection with utilization of such matters, including technical data, proprietary rights or patentable materials.

The information and data contained in NFPA Documents has been obtained from sources believed to be reliable. However, it should not be assumed that all acceptable or applicable sources of information, procedures, methods or techniques are contained in NFPA Documents, or that additional measures may not be required under certain circumstances or conditions.

NFPA Documents and/or policies and procedures are subject to periodic review and may be changed without notice. NFPA Documents are only current as of their publication date. NFPA Documents, after publication, may be revised or withdrawn at any time and current information on all NFPA Documents may be received by calling or writing NFPA. Additionally, the various codes and regulations referenced in NFPA Documents may be amended from time to time and it should not be assumed that the versions referenced therein are the most current versions of such codes and regulations. Please consult the appropriate regulatory authorities for the most up-to-date versions.

NFPA Documents imply a consensus of those substantially concerned with their scope and provisions and are intended as a guide to aid the manufacturer, the consumer and the general public. The publication of NFPA Documents does not in any respect preclude anyone, whether they have participated in the development of or approved such NFPA Documents or not, from manufacturing, marketing, purchasing, or using of products, processes or procedures not conforming to the NFPA Documents. NFPA Documents do not constitute or indicate a warranty of any sort, express or implied, including but not limited to a warranty or representation as to quality, merchantability or fitness for a particular use or purpose.

Participation by federal agency representative(s) or person(s) affiliated with the industry is not to be interpreted as government or industry endorsement of an NFPA Document(s).

NOTICE

NFPA Documents do not express or imply any judgment, certification or endorsement of or with respect to, the safety, design or performance of any product, component, or its use.

NFPA does not examine, investigate, test, recommend, or certify the design, use or safety of any product or component, even those which may incorporate one or more NFPA Documents. NFPA Documents therefore have no application to and do not express or imply any recommendation, representation or warranty, with respect to the safety, design, use, performance, or functional interchangeability of components or products which incorporate NFPA Documents.

This publication may not, in whole or in part, be reproduced, copied or disseminated, entered into or stored in a computer database or retrieval system, or otherwise utilized without the prior written permission of NFPA.

Foreword

At the 8 June 2005 joint meeting of NFPA/T3.4 and NFPA/T3.6, NFPA/T3.6 approved a motion to prepare a Title, Scope and Purpose (TSP) for the revision of ANSI/(NFPA)T3.6.7 R2-1996 (R2004). The TSP was approved by the NFPA Technical Board at its meeting on 11 August 2005, and then drafts of the document were discussed at subsequent project group meetings.

ANSI/(NFPA)T3.6.7 R3-200x was circulated for general review on 8 August 2007, which closed on 8 September 2007. The voting resulted in four approval votes, zero disapprovals, five abstentions, and no comments. At its 10 January 2008 meeting, the NFPA Technical Board approved a motion to circulate the document for simultaneous NFPA final and ANSI approval ballots.

Draft 2 was discussed at subsequent meetings, and on 5 November 2008, the document was circulated for simultaneous NFPA final and ANSI approval ballots, which closed on 20 December 2008. The NFPA ballot resulted in eight approval votes, one abstention, zero disapprovals and one editorial comment. The document was approved for publication by the NFPA Technical Board at its meeting on 8 January 2009.

As a result of a decision made by the NFPA Board of Directors at its meeting on 27 June 2009, NFPA discontinued its activities as an ANSI Accredited Standards Developer. Therefore, the document designation was changed to NFPA/T3.6.7 R3-2009.

Project Group Members who developed this standard:

Lido Boni
Project Chair
Parker Hannifin Corp.

Pete Molloy
SMC Corporation

Bryan Nelson
Caterpillar, Inc.

Dan Rosinski
Bosch Rexroth Corp.

Charles Woodin
Milwaukee Cylinder

Carrie Tatman Schwartz
Industry/National Standards Development
Manager
National Fluid Power Association

/cts

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 that converts fluid 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.

A square head cylinder is a specific design initially developed for industrial (inplant) use. It is manufactured and sold as a dimensionally interchangeable component by many suppliers. Recognition of this dimensional interchangeability is one of the purposes of this document.

Fluid power systems and products – Square head industrial cylinders – Mounting dimensions

1 Scope

- 1.1 This standard establishes mounting dimensions for dimensionally-interchangeable heavy-duty hydraulic, light-duty hydraulic and pneumatic square head industrial fluid power cylinders.
- 1.2 This standard is intended to:
- promote dimensional interchangeability by establishing uniform mounting dimensions for various types of cylinder mountings; and
 - allow manufacturers freedom of design in cylinders without restricting the advancement of the art while providing basic guidelines necessary for product dimensional interchangeability.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this ANSI document. At the time of this publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this ANSI 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 standards.

ANSI/B93.3 (latest edition), *Fluid power systems and products – Cylinder bores and piston rod diameters – Inch series.*

ISO 5598 (latest edition), *Fluid power systems and components – Vocabulary*

ISO 6099 (latest edition), *Fluid power systems and components – Identification code for mounting dimensions and mounting types.*

ASME B1.1-2003, *Unified Inch Screw Threads (UN and UNR Thread Form)*

3 Terms and definitions

For the purposes of this recommended standard, the terms and definitions given in ISO 5598 apply.

4 Units

Customary U.S. units are used in this document.

NOTE The NFPA Cylinder Product Section NFPA/T3.6 chose not to include metric units in this document because related ISO standards (ISO 6020-2 and ISO 15552) for similar products provide metric mounting dimensions.