



NFPA Recommended Standard  
**NFPA/T3.5.24-2001 (R2011)**  
26 August 2001

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AN INDUSTRY STANDARD FOR FLUID POWER

## **Hydraulic fluid power – Pressure relief valves – Method of testing and presenting basic performance data**

Descriptors: hydraulic relief valves testing performance data standardized information cracking pressure reseal regulating characteristics hysteresis overshoot stability leakage

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published by

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## Foreword

This Foreword is not part of National Fluid Power Association (NFPA) Recommended Standard *Hydraulic fluid power – Pressure relief valves – Method of testing and presenting basic performance data*, NFPA/T3.5.24-2001.

At the 19 October 1981 NFPA/T3.5 meeting, a consensus was reached that a document was needed for relief valves. The project group was formed at the NFPA/T3.5 meeting on 24 March 1982 and Donald Reinicker (HUSCO International) agreed to serve as Project Chair.

A Title, Scope and Purpose (TSP) was prepared by the project group and received NFPA/T3.5 approval. On 26 May 1982, it was presented to the Technical Board and was approved.

The first working draft was prepared and reviewed by the project group on 5 October 1982. It was subsequently revised and presented to the NFPA/T3.5 clause on 6 March 1985 for their approval to send out for general review. Headquarters technical staff prepared the general review draft on 6 December 1985.

Due to the length of time since the first general review and lack of project group response to the comments from this review, at the 22 March 1990 NFPA/T3.5 meeting it was recommended that the document be sent out for a second general review. Copies of the comments received from the first general review were sent with this review. It was also recommended that the document not be changed since the first general review draft was issued.

The document was submitted for second general review on 31 August 1990. The project group began the review of the comments from the second general review on 14 November 1990. The project group continued the review of the comments from the first and second general review on 12 November 1991.

Project Chair Liberfarb updated the document for review at the 25 May 1994 meeting. The project group met and reviewed draft no. 2.

Project Chair Liberfarb updated figure 1 and draft no. 3 was reviewed at the 21 September 1994 project group meeting. Project Chair Liberfarb updated draft no. 3 on 9 January 1995 and draft no. 4 was sent out to the project group for review prior to the meeting. Along with draft no. 4, Wayne Wilcox's comments were sent to the project group for review. At the 8 February 1995 project group meeting, revisions to the document were made and the document was approved for third general review.

The document was updated and sent out for third general review on 10 May 1995. The third general review closed on 21 June 1995, with comments from three companies. Changes to the document were discussed and it was agreed upon to send the document out for a fourth general review at the 14 February 1996 NFPA/T3.5.24 project group meeting.

Project Chair Rueter updated the document on 9 January 1998. The document was sent out for fourth general review on 6 February 1998 and comments were discussed at the 19 May 1999 project group meeting. Changes were made to the document in preparation of the fifth general review.

At the 9 February 2000 project group meeting, members completed the review of the comments received from the fifth general review circulated 30 July 1999. Pending completion of the commentator approval letters, the document was revised and submitted for ballot. Mr. Rueter forwarded revisions of the document text and illustrations to Headquarters.

At the 17 May 2000 project group meeting, members reviewed draft no. 5 and approved the document for final ballot.

At the 20 September 2000 project group meeting, members reviewed draft no. 6 and comments received with Mr. Klimaszewski's general review disapproval vote. Headquarters developed and sent a commentator response letter to Mr. Klimaszewski. Mr. Rueter agreed to attend the Technical Board meeting in November 2000 to make a recommendation for final ballot.

The final ballot was circulated 10 January 2001 and closed 10 February 2001 with the final ballot tally totaling 15 approvals, no disapprovals and six not voting. At the 17 May 2001 project group meeting, members discussed the comments received from the circulation of NFPA/T3.5.24-200x for final ballot and made changes to the document.

At the 9 August 2001 NFPA Technical Board meeting, the Technical Auditor submitted a written report that the document development process had been followed, but the schematic in figure 1 needed to be changed before publishing. Technical Board members agreed to approve the NFPA/T3.5 recommendation to publish NFPA/T3.5.24-200x, pending the change to the schematic in figure 1.

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This is a preview of "NFPA/T3.5.24-2001 (R...)". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a fluid (liquid or gas) under pressure within an enclosed circuit. Typical components found in such systems are hydraulic valves. This standard addresses the device that limits the maximum pressure of the liquid in the circuit.

# Hydraulic fluid power – Pressure relief valves – Method of testing and presenting basic performance data

## 1 Scope

1.1 This standard includes:

- standard methods for testing the performance characteristics of hydraulic pressure relief valves;
- a uniform method for presenting the test data;
- standardized information for conducting comparative tests.

1.2 This standard is intended to provide a uniform laboratory procedure for measuring and reporting the cracking pressure, reseal pressure, pressure regulating characteristics, hysteresis, pressure overshoot, stability and leakage of a hydraulic relief valve.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this NFPA document. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this NFPA document are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referenced applies. NFPA maintains registers of currently valid NFPA and ANSI/(NFPA) Standards. Standards development organization contact information and links can be found on the NFPA website ([www.nfpa.com](http://www.nfpa.com)).

IEEE/ASTM SI 10 (*latest edition*), *Standard for Use of the International System of Units (SI): The Modern Metric System*.

ISO 1000 (*latest edition*), *SI units and recommendations for the use of their multiples and of certain other units*.

ISO 3448 (*latest edition*), *Industrial liquid lubricants - ISO viscosity classification*.

ISO 4406 (*latest edition*), *Hydraulic fluid power – Fluids – Method for coding the level of contamination by solid particles*.

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

NFPA/T2.12.1 R1 (*latest edition*), *Hydraulic fluid power – Systems and products – Method of measuring average steady-state pressure*.

NFPA/T2.12.10 R1 (*latest edition*), *Recommended practice – Hydraulic fluid power – Systems and products – Testing general measurement principles and tolerances*.