NFPA Recommended Standard
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AN INDUSTRY STANDARD FOR FLUID POWER

Hydraulic fluid power systems — Methods for preventing external leakage

(Revision of ANSI/(NFPA)T2.24.2-1997)

Descriptors: component temperature, external leakage, fluid power, fluid contaminant, fluid temperature, hydraulic systems, industrial hydraulic systems, mobile hydraulic systems, sealing reliability

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Foreword

This Foreword is not part of NFPA Recommended Standard *Hydraulic fluid power systems – Methods for preventing external leakage*, NFPA/T2.24.2 R1-2007.

The NFPA Technical Board endorsed the recommendation to revise NFPA/T2.24.2-1997 on 6 January 2004. The Hydraulic Systems Technology Committee NFPA/T2.24 approved a TSP on 17 February 2004, and the NFPA Technical Board approved a TSP on 1 April 2004.

Preliminary Draft 1 was reviewed and revised by NFPA/T2.24 at its 17 February 2004 meeting, resulting in a Draft 2. Additional comments and communications resulted in Draft 3, dated 30 April 2004, for discussion at the 20 May 2004 meeting.

At its 20 May 2004 meeting, NFPA/T2.24 reviewed Draft 3 and suggested a number of changes to be made. It was noted that the project leader Jerry Carlin had incorporated information sent by Jack Walrad and comments on connectors from Paul DeWitt of Eaton Corporation. Tom Wanke provided a list of comments on the document, many of which were accepted. Revisions were made to the document, based on changes agreed upon at the meeting. Messrs. Carlin and Wanke agreed to research several issues and provide input for possible changes to the document, for discussion at the 21 September 2004 meeting.

At the 21 September 2004 meeting, NFPA/T2.24 approved a minor rewording of the scope, agreed on added statements noting the normal maximum applicable pressure, and made other corrections and clarifications. These clarifications were reviewed again at an 18 March 2005 meeting, resulting in the preparation of Draft 5 on 25 May 2005.

At its 21 September 2004 meeting, NFPA/T2.24 approved a motion to circulate the document for general review. The general review ballot was circulated on 11 November 2005, and closed on 22 December 2005. All comments were resolved satisfactorily.

On 3 August 2006, NFPA/T2.24 approved a motion via the on-line forums to request approval from the NFPA Technical Board to circulate the document for final ballot. The NFPA Technical Board gave its approval for this ballot at its 10 August 2006 meeting. The document was circulated for final ballot on 22 March 2007, which closed on 7 May 2007.

The NFPA ballot resulted in eight approval votes, zero disapprovals and one abstention. All comments were editorial and were satisfactorily resolved at the joint meeting of NFPA/T2.24 and U.S. TAG SC 9/WG 1 on 16 May 2007, where a motion was approved to ask the NFPA Technical Board for permission to publish the document. At its 9 August 2007 meeting, the NFPA Technical Board gave its approval to publish the document.

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Introduction

This recommended standard is intended to promote reliable sealing of hydraulic systems. It identifies common sources and causes of external leakage and recommends preventive measures known to be effective. Use of these practices will help to eliminate external leaks in hydraulic equipment.

Hydraulic fluid power systems — Methods for preventing external leakage

1 Scope

This recommended standard applies to hydraulic fluid power systems for mobile and stationary industrial machinery. It is intended to assist in system design, installation, and maintenance by describing established methods for achieving reliable sealing to prevent external leakage.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this 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 Standards. Standards development organization contact information and links can be found on the NFPA website **(www.nfpa.com).**

NFPA/T3.19.25 R1, *Information report – Fluid power systems – Sealing devices – Storage, handling and installation of elastomeric seals and exclusion devices*

NFPA/T2.24.1 (latest edition), *Hydraulic fluid power – Systems standard for stationary industrial machinery – Supplement to ISO 4413:1998 – Hydraulic fluid power – General rules relating to systems*

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 3305 (latest edition), *Plain end welded precision steel tubes –Technical conditions for delivery*

ISO 3601-1 (latest edition), *Fluid power systems – O-rings – Part 1: Inside diameters, cross-sections, tolerances and designation codes*

ISO 3601-2 (latest edition), *Fluid power systems – O-rings – Part 2: Housing dimensions for general applications*

ISO 3601-3 (latest edition), *Fluid power systems – O-rings – Part 3: Quality acceptance criteria*

ISO 3601-4 (latest edition), *Fluid power systems – O-rings – Part 4: Anti-extrusion rings (back-up rings)*

ISO 3601-5 (latest edition), *Fluid power systems – O-rings – Part 5: Suitability of elastomeric materials for industrial applications*