SLOVENSKI STANDARD
SIST ISO 3724:1998

01-december-1998

Fluidna tehnika - Hidravlika - Filtrski vloģki - Preverjanje trajne pretoļne trdnosti

Hydraulic fluid power -- Filter elements -- Verification of flow fatigue characteristics

Transmissions hydrauliques -- Éléments filtrants -- Vérification des caractéristiques d'un filtre par un essai de fatigue due au débit

Ta slovenski standard je istoveten z: **ISO 3724:1976**

ICS:

23.100.60	Filtri, tesnila in onesnaģevanje tekoļ in	Filters, seals and contamination of fluids

SIST ISO 3724:1998 **en**

INTERNATIONAL STANDARD ISO 3724

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Hydraulic fluid power — Filter elements — Verification of flow fatigue characteristics

Transmissions hydrauliques — Éléments filtrants — Vérification des caractéristiques d'un filtre par un essai de fatigue due au débit

First edition — 1976-09-30

UDC 620.8.032 : 620.193.15

Ref. No. ISO 3724-1976 (E)

Descriptors : hydraulic fluid power, filters, fluid filters, tests, fatigue tests, cyclic loads, verifying, fatigue strength at *N* cycles.

Price based on 2 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3724 was drawn up by Technical Committee ISO/TC 131, *Fluid power systems and components*, and was circulated to the Member Bodies in March 1975.

It has been approved by the Member Bodies of the following countries :

Australia	Hungary	Spain
Austria	India	Sweden
Belgium	Italy	Switzerland
Brazil	Japan	Turkey
Czechoslovakia	Netherlands	United Kingdom
Finland	Poland	U.S.A.
France	Romania	U.S.S.R.
Germany	South Africa, Rep. of	Yugoslavia

No Member Body expressed disapproval of the document.

Printed in Switzerland

Hydraulic fluid power — Filter elements — Verification of flow fatigue characteristics

0 INTRODUCTION

In hydraulic fluid power systems, power is transmitted and controlled through a fluid under pressure within an enclosed circuit. Filters maintain fluid cleanliness by removing insoluble contaminants.

The filter element is the porous device which performs the actual process of filtration.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for determining the flow fatigue characteristics of a hydraulic fluid power filter element.

It establishes a uniform method for verifying the ability of a filter element to withstand the flexing caused by cyclic differential pressures without altering its collapse/burst rating.

2 REFERENCES

ISO 1219, *Fluid power systems and components — Graphic symbols.*

ISO 2941, *Hydraulic fluid power — Filter elements — Verification of collapse/burst resistance.*

ISO 2942, *Hydraulic fluid power — Filter elements — Determination of fabrication integrity.*

ISO 2943, *Hydraulic fluid power — Filter elements — Verification of material compatibility with fluids.*

ISO 5598, *Fluid power systems and components — Vocabulary.*

3 DEFINITIONS

3.1 filter element flow fatigue : The ability of a filter element to resist structural failure due to flexing caused by cyclic system flow conditions.

3.2 terminal pressure drop : The maximum pressure drop permitted across the filter element as designated by the manufacturer to limit useful performance.

3.3 For definitions of other terms used, see ISO 5598.

4 GRAPHICAL SYMBOLS

Graphical symbols used are in accordance with ISO 1219.

5 TEST EQUIPMENT

5.1 Flow fatigue cycle test stand as shown in the figure.

5.2 Pressure sensing and recording instruments with a frequency response consistent with the cycle rate.

5.3 Test filter housing as recommended by the filter manufacturer and modified as needed to ensure that fluid cannot by-pass the filter element.

5.4 Fluid compatible with the filter element material, in accordance with ISO 2943.

5.5 Cycle counting device to record flow fatigue cycles.

6 TEST PROCEDURE

6.1 Subject the filter element to a fabrication integrity test in accordance with ISO 2942.

6.2 Disqualify from further testing any element failing to pass a minimum bubble pressure as specified by the manufacturer.

6.3 Install the filter housing in the flow fatigue cycle test stand (see the figure).

6.4 Determine the pressure drop across the empty filter housing up to the manufacturer's rated flow in the intended direction at a test temperature in the range of 15 to 50 °C.

6.5 Install the filter element in the test filter housing.

6.6 Subject the filter element to the manufacturer's rated normal flow at the test temperature selected in 6.4.

6.7 Add contaminant (any particulate contaminant) until the designated terminal pressure drop (filter pressure drop minus housing pressure drop) is attained.

6.8 Subject the filter element to a designated number of flow fatigue cycles. Each flow fatigue cycle consists in varying the flow rate through the filter element from 0 l/s to a flow rate not to exceed the rated normal flow and back to 0 l/s. Limit the maximum pressure drop during each cycle to the terminal pressure drop $^{0}_{-10}$ %, by variation of the flow rate.

6.9 Obtain and present a typical pressure drop versus time trace for at least one cycle. Establish a sinusoidal-shaped trace. Limit the cycle rate to 1 Hz.

7 CRITERIA FOR ACCEPTANCE

7.1 There shall be no visual evidence of structural, seal or filter medium failure.

7.2 The filter element shall successfully complete the collapse/burst resistance test in accordance with ISO 2941, except that the fabrication integrity test (see 6.1) may be run in a compatible hydraulic fluid.

8 IDENTIFICATION STATEMENT (Reference to this International Standard)

Use the following statement in test reports, catalogues and sales literature when electing to comply with this International Standard :

"Method of verifying filter element flow fatigue characteristics conforms to ISO 3724, *Hydraulic fluid power — Filter elements — Verification of flow fatigue characteristics.*"

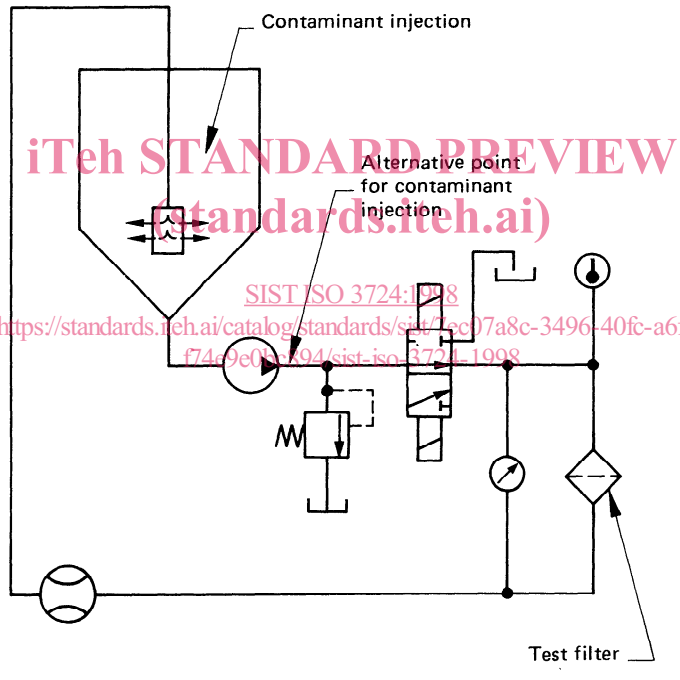

FIGURE — **Typical flow fatigue cycle test stand**