

**Renhet för komponenter – Riktlinjer för att
uppnå och kontrollera renhet hos komponenter
från tillverkning till installation**

**Hydraulic fluid power – Component cleanliness –
Guidelines for achieving and controlling
cleanliness of components from manufacture
to installation**

Denna tekniska rapport är inte en svensk standard. Detta dokument innehåller den engelska språkversionen av ISO/TR 10949:2002.

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Foreword

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Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TR 10949 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 6, *Contamination control*.

This second edition cancels and replaces the first edition (ISO/TR 10949:1996), which has been technically revised.

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Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a pressurized liquid within an enclosed circuit. Contaminants present in the circulating working liquid may degrade system performance. One method of reducing the amount of these contaminants within the system is to manufacture, package, ship, store and install components in ways that achieve and control the desired component cleanliness level.

Hydraulic fluid power — Component cleanliness — Guidelines for achieving and controlling cleanliness of components from manufacture to installation

1 Scope

This Technical Report gives guidelines for achieving, evaluating and controlling the cleanliness of hydraulic fluid power components from the time of their manufacture through to their installation in a hydraulic fluid power system.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4406, *Hydraulic fluid power — Fluids — Method for coding the level of contamination by solid particles*

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

ISO 18413:—¹⁾, *Hydraulic fluid power — Cleanliness of parts and components — Inspection document and principles related to contaminant collection, analysis, and data reporting*

3 Terms and definitions

For the purposes of this Technical Report, the terms and definitions given in ISO 5598 and the following apply.

3.1

component

part, assembly, or collection of parts that performs a function in a fluid power system

NOTE This definition differs from that in ISO 5598 because connectors, tubes and hoses are included here but are excluded from the definition in ISO 5598.

3.2

manufacturer

party that fabricates or assembles the component

NOTE The manufacturer and supplier may be the same person or company.

3.3

purchaser

party that stipulates the requirements of a machine, equipment, system, or component and judges whether the product satisfies those requirements

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3.4

supplier

party that contracts to provide the product(s) to satisfy the purchaser's requirements

NOTE The manufacturer and supplier may be the same person or company.

4 General principles

4.1 Component cleanliness during production

The manufacturer is responsible for providing components that meet the requirements either stated by the manufacturer or agreed upon with the purchaser. This includes achieving and evaluating, as necessary, appropriate levels of component cleanliness during the production process.

The required cleanliness level at the time of manufacturing release should be clearly stated in an inspection document drawn up in accordance with ISO 18413 and agreed upon between the manufacturer and purchaser.

The manufacturer is to exercise care at all steps of the production process to ensure that the required level of component cleanliness is achieved and controlled. More specifically, the manufacturer is responsible for the following:

- cleaning component parts prior to assembly, if this operation is needed to achieve the required cleanliness level;
- assembling components in an area having an overall level of contamination that will not significantly affect component cleanliness;
- flushing components, if this operation is needed to achieve the required cleanliness level;
- testing components with fluids that will not add significant contaminant to the product;
- evaluating component cleanliness by appropriate test methods;
- preparing components for packaging, including corrosion prevention, sealing of ports, etc.

4.2 Component cleanliness during packaging, storage and transport

The supplier and purchaser are to make an agreement about who is responsible for controlling component cleanliness during packaging, storage and transport to the purchaser. If the manufacturer and supplier are independent parties, their respective responsibilities should be mutually and explicitly agreed.

NOTE The supplier is generally not responsible for contamination that results from damage to either the components themselves or their packaging during transport.

The supplier (or other party that has agreed to take responsibility for ensuring component cleanliness) is to exercise care at all steps of the packaging, storage and transport processes to ensure that the required level of component cleanliness is maintained. More specifically, that responsibility includes the following:

- providing adequate packaging for component storage and shipment;
- using appropriate storage conditions;
- using appropriate shipping methods.