

This is a preview of "BS ISO 18869:2017". [Click here to purchase the full version from the ANSI store.](#)



BSI Standards Publication

## Hydraulic fluid power — Test methods for couplings actuated with or without tools

---

This is a preview of "BS ISO 18869:2017". [Click here to purchase the full version from the ANSI store.](#)

## National foreword

This British Standard is the UK implementation of ISO 18869:2017. It supersedes BS ISO 7241-2:2000, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/18/-/4, Connectors and associated components.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2017  
Published by BSI Standards Limited 2017

ISBN 978 0 580 83775 3

ICS 23.100.01

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2017.

### Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

---

This is a preview of "BS ISO 18869:2017". [Click here to purchase the full version from the ANSI store.](#)

First edition  
2017-07

---

---

## Hydraulic fluid power — Test methods for couplings actuated with or without tools

*Transmissions hydrauliques — Méthodes d'essai pour les raccords actionné avec ou sans outils*



Reference number  
ISO 18869:2017(E)

© ISO 2017

This is a preview of "BS ISO 18869:2017". [Click here to purchase the full version from the ANSI store.](#)



## **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
[copyright@iso.org](mailto:copyright@iso.org)  
[www.iso.org](http://www.iso.org)

This is a preview of "BS ISO 18869:2017". [Click here to purchase the full version from the ANSI store.](#)

## Contents

Page

<b>Foreword</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Selection of test assemblies</b> .....	<b>3</b>
<b>5 General test conditions</b> .....	<b>3</b>
5.1 Safety considerations.....	3
5.2 Thread lubrication.....	4
5.3 Torque.....	4
5.4 Test fluid and temperature.....	4
5.5 Test pressure.....	4
5.6 Test report.....	4
<b>6 Test apparatus</b> .....	<b>5</b>
<b>7 Connect force or torque test</b> .....	<b>5</b>
<b>8 Disconnect force or torque test</b> .....	<b>6</b>
<b>9 Leakage test</b> .....	<b>7</b>
9.1 Low pressure, coupled.....	7
9.2 Low-pressure, uncoupled (valved only).....	9
9.3 Maximum working pressure, coupled.....	10
9.4 Maximum working pressure, uncoupled (valved only).....	10
<b>10 Vacuum test</b> .....	<b>10</b>
10.1 General.....	10
10.2 Coupled test.....	10
10.3 Uncoupled test (valved only).....	12
<b>11 Air inclusion test</b> .....	<b>12</b>
<b>12 Fluid loss test</b> .....	<b>14</b>
<b>13 Pressure drop (<math>\Delta p</math>) test</b> .....	<b>15</b>
<b>14 Static pressure test</b> .....	<b>16</b>
14.1 Coupled.....	16
14.2 Uncoupled (valved type only).....	17
<b>15 Specific temperature test</b> .....	<b>17</b>
15.1 Maximum working temperature exposure.....	17
15.1.1 General.....	17
15.1.2 Coupled.....	17
15.1.3 Uncoupled (valved only).....	17
15.2 Maximum working temperature service.....	18
15.2.1 Coupled.....	18
15.2.2 Uncoupled (valved only).....	18
15.3 Minimum working temperature.....	18
15.3.1 Coupled.....	18
15.3.2 Uncoupled (valved only).....	18
<b>16 Endurance test</b> .....	<b>18</b>
16.1 Couplings other than screw-to-connect types.....	18
16.2 Screw-to-connect couplings.....	19
16.2.1 Principle.....	19
16.2.2 Procedure.....	19

This is a preview of "BS ISO 18869:2017". [Click here to purchase the full version from the ANSI store.](#)

16.2.3	Re-use of components	20
<b>17</b>	<b>Overtightening test for screw-to-connect couplings only</b>	<b>20</b>
17.1	Principle	20
17.2	Test equipment	20
17.3	Procedure	20
17.4	Re-use of components	22
<b>18</b>	<b>Burst test</b>	<b>22</b>
18.1	Safety precautions	22
18.2	Burst pressure, uncoupled (valved only)	22
18.3	Burst pressure, coupled	22
<b>19</b>	<b>Pressure impulse test in accordance with ISO 6803</b>	<b>22</b>
19.1	General	22
19.2	Coupled	23
19.3	Uncoupled (valved only)	23
<b>20</b>	<b>Pressure impulse test in accordance with ISO 6802 (for coupling assemblies only)</b>	<b>24</b>
20.1	General	24
20.2	Test apparatus	24
20.3	Positioning of the test item	24
20.4	Procedure	25
<b>21</b>	<b>Rotating impulse test</b>	<b>26</b>
21.1	General	26
21.2	Procedure	26
<b>22</b>	<b>Surge flow test — Long duration</b>	<b>27</b>
<b>23</b>	<b>Surge flow test — Short duration</b>	<b>27</b>
<b>24</b>	<b>Corrosion resistance test</b>	<b>29</b>
<b>25</b>	<b>Test report and data presentation</b>	<b>29</b>
<b>26</b>	<b>Summary of information to be reported</b>	<b>29</b>
<b>27</b>	<b>Identification statement (reference to this document)</b>	<b>29</b>
<b>Annex A</b>	<b>(normative) Test data form</b>	<b>30</b>
<b>Annex B</b>	<b>(normative) Characteristic test with presence of internal pressure</b>	<b>35</b>
<b>Bibliography</b>		<b>38</b>

This is a preview of "BS ISO 18869:2017". [Click here to purchase the full version from the ANSI store.](#)

## Foreword

### Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 4, *Connectors and similar products and components*.

This first edition of ISO 18869 cancels and replaces ISO 7241-2:2000, which has been technically revised with the following changes:

- the title has been changed;
- the scope has been expanded.

This is a preview of "BS ISO 18869:2017". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. Couplings are used to join or quickly separate fluid conductors. Quick-action couplings, as defined in ISO 5598, can be connected and disconnected without the use of tools. Other types of couplings require the use of tools for connection and disconnection.



This is a preview of "BS ISO 18869:2017". Click here to purchase the full version from the ANSI store.

# Hydraulic fluid power — Test methods for couplings actuated with or without tools

## 1 Scope

This document specifies methods for testing and evaluating the performance of quick-action couplings for use in hydraulic fluid power applications. This document does not apply to the testing of tube connections, stud ends for ports and flange connections, which are covered by ISO 19879.

Test methods covered in this document are independent of each other and outline the method to follow for each test. See the respective connector standard for which tests to conduct and for performance requirements. It is not intended that all tests be carried out for every application; it is up to the user of this document to select the applicable tests.

For qualification of the coupling, the minimum number of samples specified in this document is to be tested, unless otherwise specified in the relevant coupling standard or as agreed upon by the manufacturer and the user.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 3448, *Industrial liquid lubricants — ISO viscosity classification*

ISO 3601-3, *Fluid power systems — O-rings — Part 3: Quality acceptance criteria*

ISO 4411, *Hydraulic fluid power — Valves — Determination of pressure differential/flow characteristics*

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

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method*

ISO 6802, *Rubber and plastics hoses and hose assemblies with wire reinforcements — Hydraulic impulse test with flexing*

ISO 6803, *Rubber and plastics hoses and hose assemblies — Hydraulic-pressure impulse test without flexing*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

## 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>