

This is a preview of "BS ISO 10522:2021". [Click here to purchase the full version from the ANSI store.](#)



BSI Standards Publication

## **Agricultural irrigation equipment — Direct-acting pressure-regulating valves**

---

This is a preview of "BS ISO 10522:2021". [Click here to purchase the full version from the ANSI store.](#)

## National foreword

This British Standard is the UK implementation of ISO 10522:2021.

The UK participation in its preparation was entrusted to Technical Committee AGE/30, Irrigation and drainage equipment.

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

### Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2021  
Published by BSI Standards Limited 2021

ISBN 978 0 539 04429 4

ICS 65.060.35

### 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 2021.

### Amendments/corrigenda issued since publication

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

---

This is a preview of "BS ISO 10522:2021". [Click here to purchase the full version from the ANSI store.](#)

Second edition  
2021-08-25

---

---

## **Agricultural irrigation equipment — Direct-acting pressure- regulating valves**

*Matériel agricole d'irrigation — Vannes de régulation de la pression à action directe*



Reference number  
ISO 10522:2021(E)

© ISO 2021

This is a preview of "BS ISO 10522:2021". [Click here to purchase the full version from the ANSI store.](#)



## **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2021, 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 10522:2021". [Click here to purchase the full version from the ANSI store.](#)

## Contents

Page

<b>Foreword</b> .....	<b>iv</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 Pressure regulator classification</b> .....	<b>3</b>
4.1 According to construction of regulation assembly.....	3
4.2 According to construction of pressure regulator.....	3
4.3 According to regulated pressure at zero flow.....	4
4.4 According to accuracy level [see 7.5.2.4 b)].....	4
<b>5 Marking</b> .....	<b>4</b>
<b>6 Technical characteristics</b> .....	<b>4</b>
6.1 General.....	4
6.2 Pressure regulator body.....	5
6.3 Adjustment assembly.....	5
6.4 Connections.....	5
6.5 Adjustable stop.....	5
<b>7 Mechanical and functional tests</b> .....	<b>5</b>
7.1 Overview.....	5
7.2 General.....	6
7.3 Regulation uniformity (in non-adjustable pressure regulators).....	6
7.4 Tightness of pressure regulator with adjustable stop.....	7
7.5 Regulation curve.....	7
7.5.1 Installation.....	7
7.5.2 Test results and requirements.....	8
7.5.3 Single-range pressure regulators (class 4.1.1).....	9
7.5.4 Multi-range pressure regulators (class 4.1.2).....	9
7.5.5 Single-range adjustable pressure regulators (class 4.1.3).....	9
7.5.6 Multi-range adjustable pressure regulators (class 4.1.4).....	9
7.6 Regulated pressure as function of pressure regulator adjustment in pressure regulators of classes 4.1.3 and 4.1.4.....	9
7.7 Regulated pressure at zero flow (in pressure regulators of class 4.3.2).....	9
7.8 Regulated pressure as function of inlet pressure at constant flow rate.....	10
7.8.1 General.....	10
7.8.2 Plotting pressure curves.....	10
7.9 Regulation curve of integral pressure regulators (class 4.2.2).....	10
7.10 Pressure loss.....	11
7.11 Resistance of pressure regulator body to internal hydrostatic pressure.....	11
7.11.1 General.....	11
7.11.2 Metal-body pressure regulators.....	11
7.11.3 Plastics-body pressure regulators.....	11
<b>8 Durability</b> .....	<b>12</b>
8.1 On/off cycles.....	12
8.2 Changing condition cycles.....	12
8.2.1 General.....	12
8.2.2 For ordinary pressure regulators.....	12
8.2.3 For integral pressure regulators.....	12
8.2.4 Requirement for ordinary and integral pressure regulators.....	12
<b>9 Information to be supplied by the manufacturer</b> .....	<b>13</b>
9.1 General information.....	13
9.2 Operational data.....	13
<b>Annex A (informative) Figures</b> .....	<b>14</b>

This is a preview of "BS ISO 10522:2021". [Click here to purchase the full version from the ANSI store.](#)

## 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 of 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 [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 18, *Irrigation and drainage equipment and systems*.

This second edition cancels and replaces the first edition (ISO 10522:1993), which has been technically revised.

The main changes compared to the previous edition are as follows.

- The range of pressure regulators sizes has been extended up to DN 100 (4").
- The water temperature of the irrigation system has been harmonized to 60 °C.
- The normative references have been updated.
- The terms and definitions have been updated.
- The testing water temperature range has been updated to 4 °C to 35 °C.
- The face-to-face distance of the flanged bodies of the pressure regulators has been updated to ±4 mm for plastics-body regulators.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

This is a preview of "BS ISO 10522:2021". Click here to purchase the full version from the ANSI store.

# Agricultural irrigation equipment — Direct-acting pressure-regulating valves

## 1 Scope

This document specifies construction and performance requirements and test methods for direct-acting pressure-regulating valves (hereinafter "pressure regulators") intended for operation in irrigation systems, with water at temperatures not exceeding 60 °C, which can contain fertilizers and chemicals of types and in concentrations commonly used in agricultural irrigation.

This document applies to pressure regulators in nominal sizes up to and including 100 mm (4 in).

## 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 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 7005-1, *Pipe flanges — Part 1: Steel flanges for industrial and general service piping systems*

ISO 7005-2, *Metallic flanges — Part 2: Cast iron flanges*

ISO 9644, *Agricultural irrigation equipment — Pressure losses in irrigation valves — Test method*

ISO 24649:—,<sup>1)</sup> *Agricultural irrigation equipment — Manually and hydraulically operated plastics valves*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

### 3.1

#### **direct-acting pressure-regulating valve** **pressure regulator**

valve in which the water passage widens or narrows automatically without an external device to maintain the pressure at the outlet of the valve close to a pre-set value under varying pressures or flow rates at the inlet of the valve

Note 1 to entry: It is also called direct-acting pressure regulator.

### 3.2

#### **ordinary pressure regulator**

pressure regulator intended for installation upstream from an irrigation device and not integrated into the irrigation device or fitted specifically to it

---

1) Under preparation. Stage at the date of publication: ISO/DIS 24649:2021.