BRITISH STANDARD

BS ISO 8140:2009

Pneumatic fluid power — Cylinders, 1 000 kPa (10 bar) series — Mounting dimensions of rod-end clevises

ICS 23.100.20

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

BSI
British Standards

National foreword

This British Standard is the UK implementation of ISO 8140:2009. It supersedes BS ISO 8140:1991 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/18/-/3, Cylinders.

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.

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 June 2009.

© BSI 2009

ISBN 978 0 580 63560 1

Amendments/corrigenda issued since publication

Date	Comments

BS ISO 8140:2009

INTERNATIONAL STANDARD

ISO 8140

Third edition
2009-04-01

Pneumatic fluid power — Cylinders, 1 000 kPa (10 bar) series — Mounting dimensions of rod-end clevises

Transmissions pneumatiques — Vérins, série à 1 000 kPa (10 bar) — Dimensions d'interchangeabilité des chapes d'extrémité de tige

Reference number
ISO 8140:2009(E)

© ISO 2009

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

COPYRIGHT PROTECTED DOCUMENT

© ISO 2009

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

© ISO 2009 – All rights reserved

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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 8140 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 3, *Cylinders*.

This third edition cancels and replaces the second edition (ISO 8140:1991), which has been technically revised.

© ISO 2009 – All rights reserved

Introduction

In pneumatic fluid power systems, power is transmitted and controlled through a gas under pressure within a circuit.

One component of such systems is the pneumatic fluid power cylinder. This is a device that converts power into linear mechanical force and motion. It consists of a movable element, i.e. a piston and piston rod, operating within a cylindrical bore.

© ISO 2009 – All rights reserved

INTERNATIONAL STANDARD ISO 8140:2009(E)

Pneumatic fluid power — Cylinders, 1 000 kPa (10 bar) series — Mounting dimensions of rod-end clevises

1 Scope

This International Standard specifies the mounting dimensions required for interchangeability of rod-end clevises of pneumatic cylinders. The rod-end clevises have been designed specifically for use with 1 000 kPa [10 bar[1)]] series cylinders manufactured in accordance with ISO 6430, ISO 6432 and ISO 15552, but this does not limit their application.

The clevises are used on piston rods of pneumatic cylinders for mechanically transmitting the cylinder force. The design of the clevises is based on the maximum forces resulting from the specified internal diameter of the cylinders and pressure according to ISO 6430, ISO 6432 and ISO 15552.

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 5598, *Fluid power systems and components — Vocabulary*

ISO 6099, *Fluid power systems and components — Cylinders — Identification code for mounting dimensions and mounting types*

ISO 6430, *Pneumatic fluid power — Single rod cylinders, 1 000 kPa (10 bar) series, with integral mountings, bores from 32 mm to 250 mm — Mounting dimensions*

ISO 6432, *Pneumatic fluid power — Single rod cylinders — 10 bar (1 000 kPa) series — Bores from 8 to 25 mm — Mounting dimensions*

ISO 15552, *Pneumatic fluid power — Cylinders with detachable mountings, 1 000 kPa (10 bar) series, bores from 32 mm to 320 mm — Basic, mounting and accessories dimensions*

3 Terms and definitions

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

The identification code for mounting dimensions and mounting types is in accordance with ISO 6099.

1) 1 bar = 100 kPa = 10^5 Pa; 1 Pa = 1 N/m^2.

© ISO 2009 – All rights reserved

4 Mounting dimensions

See Figure 1 and Table 1.

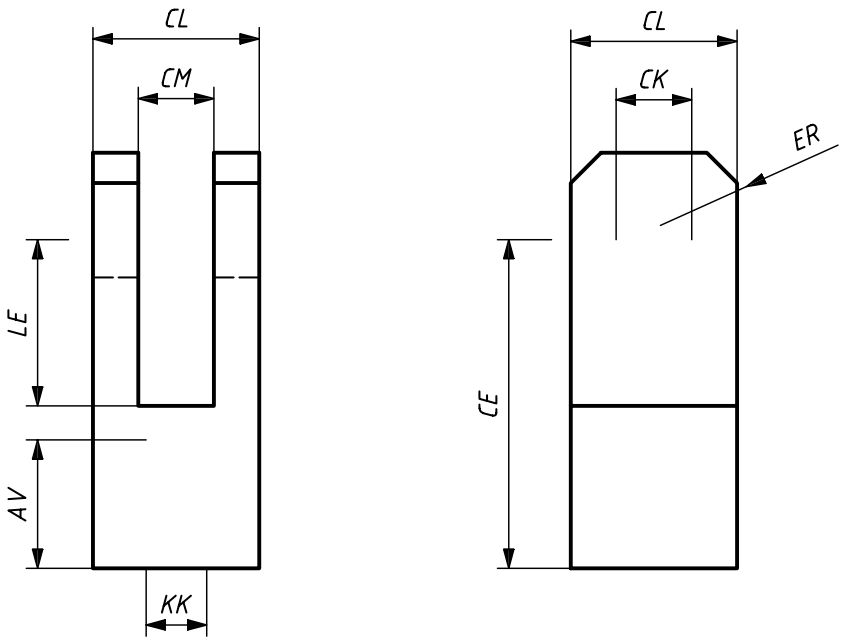

Figure 1 — AP2 — Rod clevis

Table 1 — Dimensions of AP2 — Rod clevis

Dimensions in millimetres

KK	*AV* min.	*CK* H9	*CE*	*CL* max.	*CM*	tol.	*LE* min.	*ER* max.
M4 × 0,7	8	4	16	8	4	+0,4 +0,1	8	6,5
M6 × 1	12	6	24	12	6	+0,4 +0,1	12	9,5
M8 × 1,25	16	8	32	16	8	+0,50 +0,15	16	13
M10 × 1,25	20	10	40	20	10	+0,50 +0,15	20	16
M12 × 1,25	22	12	48	24	12	+0,50 +0,15	24	19
M16 × 1,5	28	16	64	32	16	+0,50 +0,15	32	25
M20 × 1,5	33	20	80	40	20	+0,60 +0,15	40	32
M27 × 2	51	30	110	55	30	+0,60 +0,15	54	45
M36 × 2	56	35	144	70	35	+0,60 +0,15	72	57
M42 × 2	60	40	168	85	40	+0,60 +0,15	84	77
M48 × 2	65	50	192	96	50	+0,60 +0,15	96	88

© ISO 2009 – All rights reserved

5 Application instructions

5.1 Installation

5.1.1 The tolerance of f8 (see ISO 286-2) is recommended for the bearing shaft.

5.1.2 The rod and clevis shall be locked with a locking nut.

5.2 Lubrication

5.2.1 Sufficient lubrication shall be provided for the satisfactory performance of the rod-end clevises.

5.2.2 The method and frequency of such lubrication depend on the particular operating conditions.

6 Example of ordering designation

A rod-end clevis with a bore of CK = 20 mm shall be designated as follows:

Rod clevis ISO 8140 – 20

7 **Identification statement** (reference to this International Standard)

It is strongly recommended to manufacturers who have chosen to conform to this International Standard that the following statement be used in test reports, catalogues and sales literature:

“Pneumatic cylinder rod-end clevis mounting dimensions in accordance with ISO 8140:2009, *Pneumatic fluid power — Cylinders, 1 000 kPa (10 bar) series — Mounting dimensions of rod-end clevises*.”

© ISO 2009 – All rights reserved

Bibliography

[1] ISO 286-2, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*

© ISO 2009 – All rights reserved

ICS 23.100.20

Price based on 4 pages

© ISO 2009 – All rights reserved

This page has been intentionally left blank

BSI - British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: +44 (0)20 8996 9000. Fax: +44 (0)20 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: +44 (0)20 8996 9001. Fax: +44 (0)20 8996 7001 Email: orders@bsigroup.com You may also buy directly using a debit/credit card from the BSI Shop on the Website http://www.bsigroup.com/shop

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact Information Centre. Tel: +44 (0)20 8996 7111 Fax: +44 (0)20 8996 7048 Email: info@bsigroup.com

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: +44 (0)20 8996 7002 Fax: +44 (0)20 8996 7001 Email: membership@bsigroup.com

Information regarding online access to British Standards via British Standards Online can be found at http://www.bsigroup.com/BSOL

Further information about BSI is available on the BSI website at http://www.bsigroup.com

Copyright

Copyright subsists in all BSI publications. BSI also holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI.

This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained.

Details and advice can be obtained from the Copyright and Licensing Manager. Tel: +44 (0)20 8996 7070 Email: copyright@bsigroup.com

BSI Group
Headquarters 389
Chiswick High Road,
London, W4 4AL, UK
Tel +44 (0)20 8996 9001
Fax +44 (0)20 8996 7001
www.bsigroup.com/
standards