

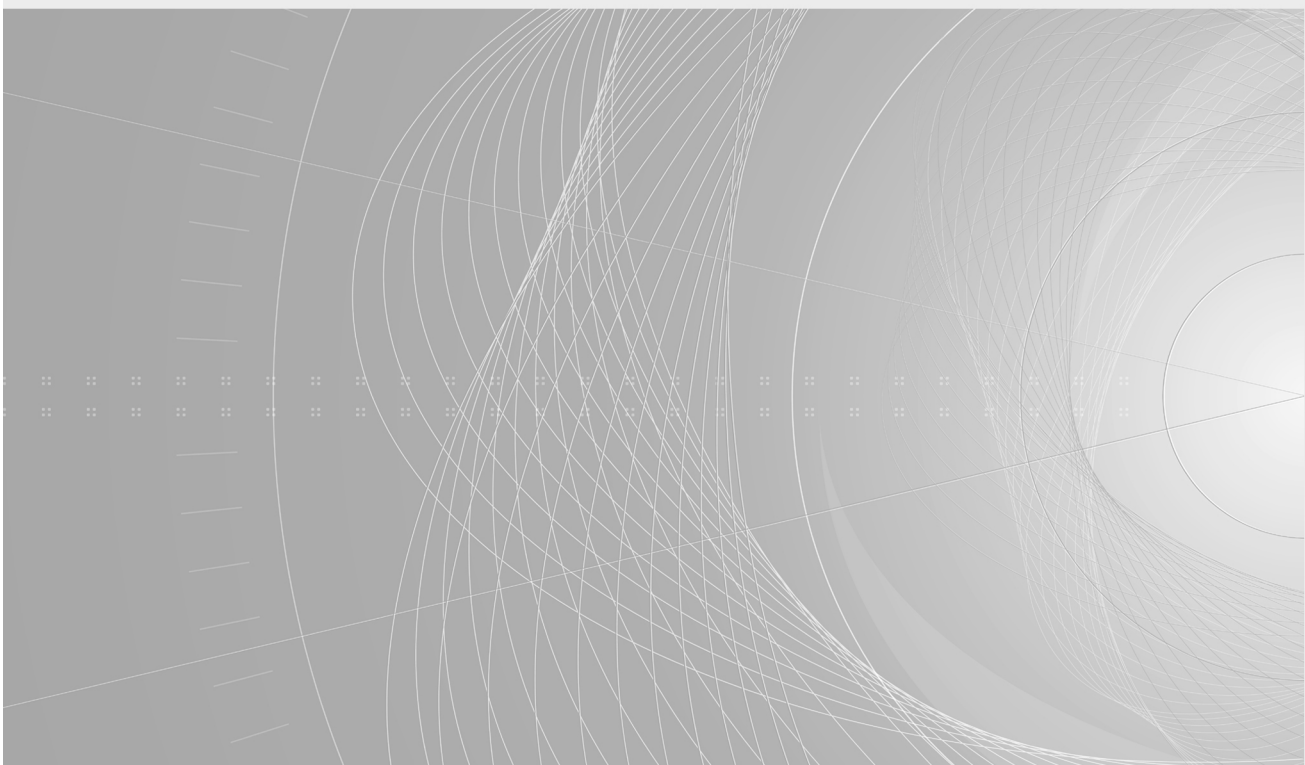
# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

Conduit systems for cable management – Outside diameters of conduits for electrical installations and threads for conduits and fittings

Systèmes de conduits pour la gestion du câblage – Diamètres extérieurs des conduits pour installations électriques et filetages pour conduits et accessoires

ITIH STANDARD PREVIEW  
(standards.iteh.ai)  
IEC 60423:2007  
<https://standards.iteh.ai/catalog/standards/sis/1c422a08-62e7-4507-b0da-69a98748dd79/iec-60423-2007>





## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2007 IEC, Geneva, Switzerland

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 IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.

Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland  
Email: [inmail@iec.ch](mailto:inmail@iec.ch)  
Web: [www.iec.ch](http://www.iec.ch)

### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: [www.iec.ch/searchpub](http://www.iec.ch/searchpub)

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: [www.iec.ch/online\\_news/justpub](http://www.iec.ch/online_news/justpub)

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

[IEC 60423:2007](#)

- Electropedia: [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: [www.iec.ch/webstore/custserv](http://www.iec.ch/webstore/custserv)

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: [csc@iec.ch](mailto:csc@iec.ch)

Tel.: +41 22 919 02 11

Fax: +41 22 919 03 00

### A propos de la CEI

La Commission Electrotechnique Internationale (CEI) est la première organisation mondiale qui élabore et publie des normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

### A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

- Catalogue des publications de la CEI: [www.iec.ch/searchpub/cur\\_fut-f.htm](http://www.iec.ch/searchpub/cur_fut-f.htm)

Le Catalogue en-ligne de la CEI vous permet d'effectuer des recherches en utilisant différents critères (numéro de référence, texte, comité d'études,...). Il donne aussi des informations sur les projets et les publications retirées ou remplacées.

- Just Published CEI: [www.iec.ch/online\\_news/justpub](http://www.iec.ch/online_news/justpub)

Restez informé sur les nouvelles publications de la CEI. Just Published détaille deux fois par mois les nouvelles publications parues. Disponible en-ligne et aussi par email.

- Electropedia: [www.electropedia.org](http://www.electropedia.org)

Le premier dictionnaire en ligne au monde de termes électroniques et électriques. Il contient plus de 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International en ligne.

- Service Clients: [www.iec.ch/webstore/custserv/custserv\\_entry-f.htm](http://www.iec.ch/webstore/custserv/custserv_entry-f.htm)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions, visitez le FAQ du Service clients ou contactez-nous:

Email: [csc@iec.ch](mailto:csc@iec.ch)

Tél.: +41 22 919 02 11

Fax: +41 22 919 03 00



IEC 60423

Edition 3.0 2007-08

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

**Conduit systems for cable management – Outside diameters of conduits for electrical installations and threads for conduits and fittings**

**Systèmes de conduits pour la gestion du câblage – Diamètres extérieurs des conduits pour installations électriques et filetages pour conduits et accessoires**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE  
CODE PRIX

M

ICS 29.120.10

ISBN 2-8318-9268-6

## CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references.....	6
3 Outside diameters and threads .....	6
4 Gauges.....	6
5 Samples of conduit .....	7
Bibliography .....	13
Figure 1 – Basic profile of screw threads .....	9
Figure 2 – Gauges for checking maximum outside diameters of threadable conduits.....	10
Figure 3a – Gauges for checking minimum outside diameters of rigid metallic threadable conduits.....	11
Figure 3b – Gauges for checking minimum outside diameters of threadable conduits other than rigid metallic.....	12
Figure 3 – Gauges for checking minimum outside diameters of threadable conduits.....	12
Table 1 – Outside diameters for threadable conduits and thread details for conduits and associated fittings .....	8
Table 2 – Outside diameters for non-threadable conduit .....	9

ITeH STANDARD PREVIEW  
(standards.iteh.ai)

IEC 60423:2007  
<https://standards.iteh.ai/catalog/standards/sist/1c4a2a08-d2e9-4307-b8da-69a98748dd79/iec-60423-2007>

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONDUIT SYSTEMS FOR CABLE MANAGEMENT –  
OUTSIDE DIAMETERS OF CONDUITS FOR ELECTRICAL  
INSTALLATIONS AND THREADS FOR CONDUITS AND FITTINGS**

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60423 has been prepared by subcommittee 23A: Cable management systems, of IEC technical committee 23: Electrical accessories.

This third edition cancels and replaces the second edition published in 1993. This edition constitutes a technical revision. The following main changes have been made to the second edition:

- revised figures and tables plus editorial and normative reference updates;
- conduit range increased to 110 mm outside diameter.

The text of this standard is based on the following documents:

FDIS	RVD
23A/541/FDIS	23A/545/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## **iTeh STANDARD PREVIEW (standards.iteh.ai)**

[IEC 60423:2007](#)

<https://standards.iteh.ai/catalog/standards/sist/1c4a2a08-d2e9-4307-b8da-69a98748dd79/iec-60423-2007>

## INTRODUCTION

The mechanical performance of the threadable parts of the conduit system will be a function of material and wall thickness, which is specified in the appropriate product standard (IEC 61386 series).

## **iTeh STANDARD PREVIEW** **(standards.iteh.ai)**

[IEC 60423:2007](https://standards.iteh.ai/catalog/standards/sist/1c4a2a08-d2e9-4307-b8da-69a98748dd79/iec-60423-2007)

<https://standards.iteh.ai/catalog/standards/sist/1c4a2a08-d2e9-4307-b8da-69a98748dd79/iec-60423-2007>

# CONDUIT SYSTEMS FOR CABLE MANAGEMENT – OUTSIDE DIAMETERS OF CONDUITS FOR ELECTRICAL INSTALLATIONS AND THREADS FOR CONDUITS AND FITTINGS

## 1 Scope

This International Standard specifies outside diameters for conduits used in electrical installations or in communication systems and the dimensional requirements for threads. It also specifies the dimensional requirements for threads used in associated fittings.

It is not applicable to extra heavy-duty electrical rigid steel conduits specified in IEC 60981.

## 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 68-1:1998, *ISO general purpose screw threads – Basic profile – Part 1: Metric screw threads*

ISO 965-1:1998, *ISO general-purpose metric threads – Tolerances – Part 1: Principles and basic data*

[IEC 60423:2007](#)

ISO 1502:1996, *ISO general-purpose metric screw threads – Gauges and gauging*

## 3 Outside diameters and threads

The outside diameters, tolerances and details of threadable conduit and external and internal metric threads are given in Table 1. Details of the thread form are given in Figure 1, which is based on ISO 68-1 and ISO 965-1. Outside diameters and tolerances of non-threadable conduit are given in Table 2.

## 4 Gauges

External threads are checked by means of threaded GO ring gauges and plain NO-GO ring gauges specified in ISO 1502.

Internal threads are checked by means of threaded GO plug gauges and plain NO-GO plug gauges specified in ISO 1502.

Outside diameters of threadable conduits are checked by means of GO ring gauges specified in Figure 2 and NO-GO gap gauges specified in Figure 3a for threadable rigid metal conduits, or NO-GO ring gauges specified in Figure 3b for threadable conduits other than rigid metal.



Outside diameters of non-threadable conduits may be checked by any suitable measuring technique.

## **5 Samples of conduit**

The samples shall be  $(500 \pm 5)$  mm in length.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[IEC 60423:2007](https://standards.iteh.ai/catalog/standards/sist/1c4a2a08-d2e9-4307-b8da-69a98748dd79/iec-60423-2007)

<https://standards.iteh.ai/catalog/standards/sist/1c4a2a08-d2e9-4307-b8da-69a98748dd79/iec-60423-2007>

**Table 1 – Outside diameters for threadable conduits and thread details for conduits and associated fittings**

Dimensions in millimetres

Outside diameters and thread for conduits			External threads						Internal threads					
Outside diameters	Metric threads	Class of fit	Pitch	Major diameter (d)		Effective diameter (d <sub>2</sub> )		Minor diameter (d <sub>1</sub> )		Major diameter (D)	Effective diameter (D <sub>2</sub> )		Minor diameter (D <sub>1</sub> )	
				max.	min.	max.	min.	max.	min.		max.	min.	max.	min.
6 0/-0,1	M6 x 0,75	6 g/6H	0,75	5,978	5,838	5,491	5,391	5,058	4,929	6,000	5,645	5,513	5,378	5,188
8 0/-0,2	M8 x 1	8 g/7H	1,00	7,974	7,694	7,324	7,144	6,747	6,528	8,000	7,540	7,350	7,217	6,917
10 0/-0,2	M10 x 1	8 g/7H	1,00	9,974	9,694	9,324	9,144	8,747	8,528	10,000	9,540	9,350	9,217	8,917
12 0/-0,3	M12 x 1,5	8 g/7H	1,50	11,968	11,593	10,994	10,770	10,128	9,846	12,000	11,262	11,026	10,751	10,376
16 0/-0,3	M16 x 1,5	8 g/7H	1,50	15,968	15,593	14,994	14,770	14,128	13,846	16,000	15,262	15,026	14,751	14,376
20 0/-0,3	M20 x 1,5	8 g/7H	1,50	19,968	19,593	18,994	18,770	18,128	17,846	20,000	19,262	19,026	18,751	18,376
25 0/-0,4	M25 x 1,5	8 g/7H	1,50	24,968	24,593	23,994	23,758	23,128	22,834	25,000	24,276	24,026	23,751	23,376
32 0/-0,4	M32 x 1,5	8 g/7H	1,50	31,968	31,593	30,994	30,758	30,128	29,834	32,000	31,276	31,026	30,751	30,376
40 0/-0,4	M40 x 1,5	8 g/7H	1,50	39,968	39,593	38,994	38,758	38,128	37,834	40,000	39,276	39,026	38,751	38,376
50 0/-0,4	M50 x 1,5	8 g/7H	1,50	49,968	49,593	48,994	48,744	48,128	47,820	50,000	49,291	49,026	48,751	48,376
63 0/-0,4	M63 x 1,5	8 g/7H	1,50	62,968	62,593	61,994	61,744	61,128	60,820	63,000	62,291	62,026	61,751	61,376
75 0/-0,4	M75 x 1,5	8 g/7H	1,50	74,698	74,593	73,994	73,744	73,128	72,820	75,000	74,291	74,026	73,751	73,376
90 0/-0,5	M90 x 2	8 g/7H	2,00	89,962	89,512	88,663	88,383	87,508	87,151	90,000	89,001	88,701	88,310	87,835
110 0/-0,5	M110 x 2	8 g/7H	2,00	109,962	109,512	108,663	108,383	107,508	107,151	110,000	109,001	108,701	108,310	107,835

NOTE See Figure 1 for details.

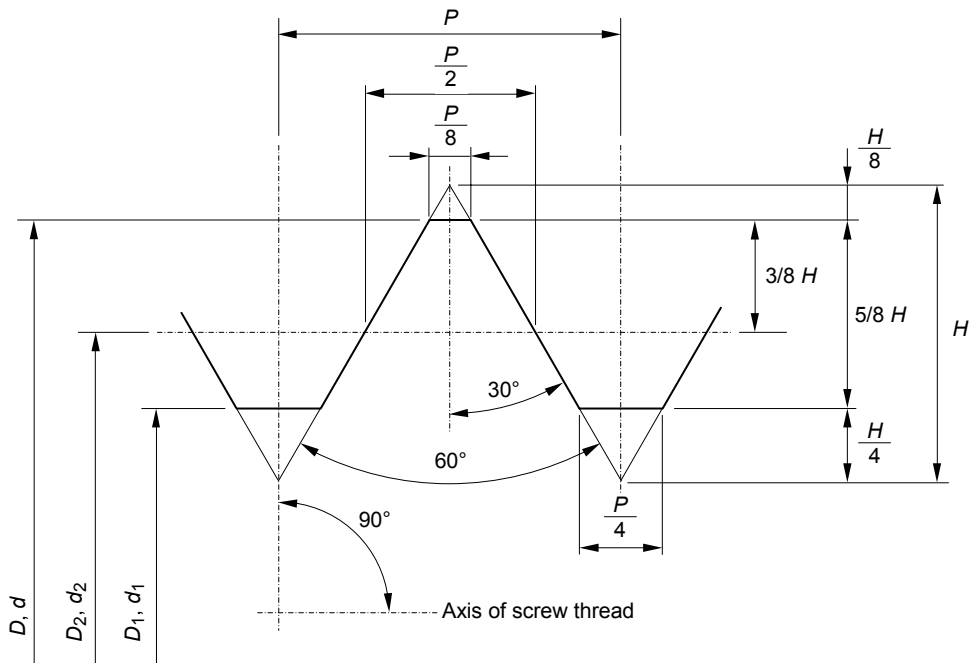
**Table 2 – Outside diameters for non-threadable conduit**

Outside diameters mm	Tolerance mm
6	+0,0 -0,1
8	+0,0 -0,2
10	+0,0 -0,2
12	+0,0 -0,3
16	+0,0 -0,3
20	+0,0 -0,3
25	+0,0 -0,4
32	+0,0 -0,4
40	+0,0 -0,4
50	+0,0 -0,5
63	+0,0 -0,6
75	+0,0 -0,7
90	+0,0 -0,9
110	+0,0 -1,1

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

IEC 60423:2007

<https://standards.iteh.ai/catalog/standards/sist/1c4e008-d2e9-4307-b8da-69a98748dd79/iec-60423-2007>



IEC 1566/07

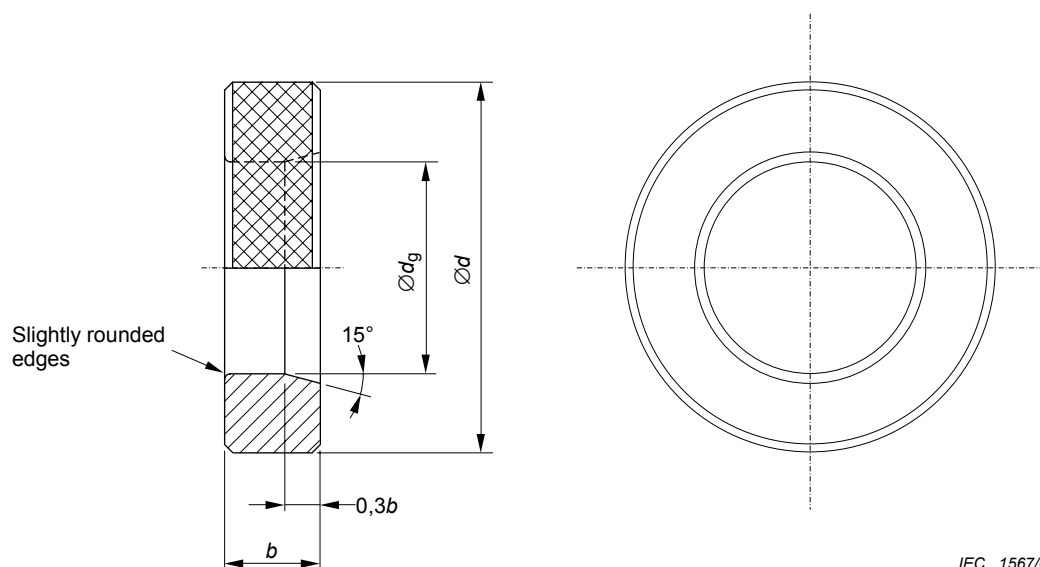
$3/8 H = 0,324 76 P$

$H = 0,866 03 P$

$5/8 H = 0,541 27 P$

$P = \text{Pitch}$

**Figure 1 – Basic profile of screw threads**



Admissible wear: +0,01 mm

Material: steel

It shall be possible to slide the gauge completely over the conduit without excessive force. For conduits normally provided with a protective coating, this test may be carried out before the application of the protective coating.

iTEH STANDARD PREVIEW  
(standards.iteh.ai)  
IEC 60423:2007  
<https://standards.iteh.ai/catalog/standards/sist/1c4a2a08-d2e9-4307-b8da-69a98748dd79/iec-60423-2007>

Size mm	$d_g^a$ mm	$b$ mm	$d$ mm
6	6,04	8	32
8	8,04	8	32
10	10,04	8	32
12	12,04	10	38
16	16,04	12	45
20	20,04	12	45
25	25,04	16	60
32	32,04	18	70
40	40,04	18	70
50	50,04	20	85
63	63,04	20	100
75	75,04	24	120

NOTE For conduits above 75 mm, alternate appropriate measuring methods may be used.

<sup>a</sup> Manufacturing tolerance:  $\begin{matrix} +0,00 \\ -0,01 \end{matrix}$  mm

Figure 2 – Gauges for checking maximum outside diameters of threadable conduits