

ASME Y14.31-2014
(Revision of ASME Y14.31-2008)

Undimensioned Drawings

**Engineering Drawing and Related
Documentation Practices**

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

ADOPTION NOTICE

ASME Y14.31, Undimensioned Drawings, was adopted on 16 September 2008 for use by the Department of Defense (DoD). Proposed changes by DoD activities must be submitted to the DoD Adopting Activity: Commander, U.S. Army Research, Development and Engineering Center (ARDEC), ATTN: RDAR-EIQ-SE, Picatinny Arsenal, NJ 07806-5000. Copies of this document may be purchased from The American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, NY 10016-5990. <http://www.asme.org>

Custodians:

Army — AR
Navy — SA
Air Force — 16

Adopting Activity:
Army — AR

(Project DRPR-2014-005)

Review Activities:

Army — AV, CR, MI, PT, TE, TM
Navy — AS, CG, CH, EC, MC, SA, SH
Air Force — 04, 11, 13, 99
DLA — DH, IS
OSD — SE
NSA — NS
Other — MP, DC2

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.

ASMC N/A

AREA DRPR

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

ASME Y14.31-2014
(Revision of ASME Y14.31-2008)

Undimensioned Drawings

**Engineering Drawing and Related
Documentation Practices**

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: June 18, 2014

This Standard will be revised when the Society approves the issuance of a new edition.

Periodically certain actions of the ASME Y14 Committee may be published as Cases. Cases are published on the ASME Web site under the Y14 Committee Page at go.asme.org/Y14committee as they are issued.

Errata to codes and standards may be posted on the ASME Web site under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

The Y14 Committee Page can be found at go.asme.org/Y14committee. There is an option available to automatically receive an e-mail notification when errata are posted to a particular code or standard. This option can be found on the appropriate Committee Page after selecting “Errata” in the “Publication Information” section.

ASME is the registered trademark of The American Society of Mechanical Engineers.

This code or standard was developed under procedures accredited as meeting the criteria for American National Standards. The Standards Committee that approved the code or standard was balanced to assure that individuals from competent and concerned interests have had an opportunity to participate. The proposed code or standard was made available for public review and comment that provides an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

ASME does not “approve,” “rate,” or “endorse” any item, construction, proprietary device, or activity.

ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor assumes any such liability. Users of a code or standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

Participation by federal agency representative(s) or person(s) affiliated with industry is not to be interpreted as government or industry endorsement of this code or standard.

No part of this document may be reproduced in any form,
in an electronic retrieval system or otherwise,
without the prior written permission of the publisher.

The American Society of Mechanical Engineers
Two Park Avenue, New York, NY 10016-5990

Copyright © 2014 by
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
All rights reserved
Printed in U.S.A.

CONTENTS

| | |
|---|----------|
| Foreword | iv |
| Committee Roster | v |
| Correspondence With the Y14 Committee | vi |
| 1 General | 1 |
| 2 References | 2 |
| 3 Definitions | 3 |
| 4 Undimensioned Drawing | 5 |
| 5 Applications | 5 |
| 6 Media | 5 |
| 7 Dimensional Accuracy Methods | 6 |
| 8 Sheet Arrangement | 6 |
| 9 Tolerances | 7 |
| 10 Dimensions | 7 |
| 11 Revisions | 7 |
| 12 Flat Pattern Development | 8 |
| Figures | |
| 1-1 Undimensioned Drawing Contributors | 10 |
| 3-1 Forming and Bending Line Examples | 11 |
| 3-2 Brake Process Example | 12 |
| 3-3 Hydro Process Example | 13 |
| 5-1 Contour Definition Drawing Example | 14 |
| 5-2 Printed Circuit Drawing Example | 15 |
| 5-3 Wire Harness Drawing Example | 16 |
| 5-4 Template Example | 17 |
| 5-5 Extrusion Drawing Example | 18 |
| 5-6 Art Layout Drawing Example | 19 |
| 5-7 Assembly Drawing Example | 20 |
| 5-8 Paint Configuration Drawing Example | 21 |
| 7-1 Rotated Grid Lines | 22 |
| 7-2 Dimensional Accuracy Points | 23 |
| 7-3 Dimensional Accuracy Point Examples | 24 |
| 7-4 Dimensional Accuracy Point Example on Roll Drawing Form | 25 |
| 7-5 Registration Mark Examples | 26 |
| 8-1 Common Reference for Split Views on Same Sheet | 27 |
| 8-2 Common Reference for Split Views on Multiple Sheets | 28 |
| 12-1 Trim After Forming Example | 29 |
| 12-2 Bend Instructions Example | 30 |
| 12-3 Flange Angle Examples | 31 |
| 12-4 Variable Bend Angle Example | 32 |
| 12-5 Joggle Material Displacement Example 1 | 33 |
| 12-6 Joggle Material Displacement Example 2 | 34 |
| 12-7 Hydro Joggle Example | 35 |
| 12-8 Hydro Joggle Offset Example | 36 |