

ASME B107.110-2012

(Redesignation and Consolidation of ASME B107.1, B107.2, B107.5M,
B107.10, B107.12, B107.33M, and B107.34)

Socket Wrenches, Handles, and Attachments

AN AMERICAN NATIONAL STANDARD



The American Society of
Mechanical Engineers

ASME B107.110-2012
**(Redesignation and Consolidation of ASME B107.1, B107.2, B107.5M,
B107.10, B107.12, B107.33M, and B107.34)**

Socket Wrenches, Handles, and Attachments

AN AMERICAN NATIONAL STANDARD



**The American Society of
Mechanical Engineers**

Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: June 7, 2013

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

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Periodically certain actions of the ASME B107 Committee may be published as Cases. Cases and interpretations are published on the ASME Web site under the Committee Pages at <http://cstools.asme.org/> 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 Committee Pages can be found at <http://cstools.asme.org/>. 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.

ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.

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 © 2013 by
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
All rights reserved
Printed in U.S.A.

CONTENTS

Foreword	vi
Committee Roster	vii
Correspondence With the B107 Committee	viii
1 Scope	1
2 References	1
3 Classification	1
4 Performance Requirements	1
5 Tests	3
6 Safety Requirements and Limitations of Use	3
Category 1 Hand Driven Socket Wrenches	4
1-1 Classification	4
1-2 Performance Requirements	4
Category 2 Socket Wrenches, Extensions, Adaptors, and Universal Joints, Power Drive (Impact)	19
2-1 Classification	19
2-2 Performance Requirements	19
Category 10 Handles and Attachments for Hand Socket Wrenches	40
10-1 Classification	40
10-2 Performance Requirements	40
10-3 Tests	41
Category 12 Nutdrivers	49
12-1 Classification	49
12-2 Performance Requirements	49
12-3 Tests	50
Category 34 Spark Plug Socket Wrenches	58
34-1 Classification	58
34-2 Performance Requirements	58
Figures	
1-1 Type I Sockets and Type II Sockets	5
1-2 Type III Universal Joint Sockets	6
2-1 Type I, II, and VII Sockets	20
2-2 Type III, Universal Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point)	21
2-3 Type IV, Bar Extension	21
2-4 Type V, Adaptor	21
2-5 Type VI, Universal Joint	21
12-1 Type I, Class 1, Styles A and B: Conventional Length Nutdriver With Solid Shaft	51
12-2 Type I, Class 2, Styles A and B: Conventional Length Nutdriver With Hollow Shaft	52
12-3 Type II, Styles A and B: Stubby Length Nutdriver	53
12-4 Type III: Miniature Handle Nutdriver	54
12-5 Torsional Moment Test	55
12-6 Bending Moment Test	57
34-1 Socket Wrenches for Spark Plugs	59

Tables

1-1	Type I Sockets, Single and Double Hexagon, $\frac{1}{4}$ in. Drive	7
1-1M	Type I Sockets, Single and Double Hexagon, $\frac{1}{4}$ in. Drive	7
1-2	Type I Sockets, Single and Double Hexagon, $\frac{3}{8}$ in. Drive	8
1-2M	Type I Sockets, Single and Double Hexagon, $\frac{3}{8}$ in. Drive	8
1-3	Type I Sockets, Single and Double Hexagon, $\frac{1}{2}$ in. Drive	9
1-3M	Type I Sockets, Single and Double Hexagon, $\frac{1}{2}$ in. Drive	10
1-4	Type I Sockets, Single and Double Hexagon, $\frac{3}{4}$ in. Drive	11
1-4M	Type I Sockets, Single and Double Hexagon, $\frac{3}{4}$ in. Drive	12
1-5	Type I Sockets, Single and Double Hexagon, 1 in. Drive	13
1-5M	Type I Sockets, Single and Double Hexagon, 1 in. Drive	14
1-6	Type II Sockets, Square, 4-Point and 8-Point, $\frac{1}{4}$ in. Drive	14
1-7	Type II Sockets, Square, 4-Point and 8-Point, $\frac{3}{8}$ in. Drive	15
1-8	Type II Sockets, Square, 4-Point and 8-Point, $\frac{1}{2}$ in. Drive	15
1-9	Type III Sockets, Universal Joint, Single and Double Hexagon, $\frac{1}{4}$ in. Drive	16
1-9M	Type III Sockets, Universal Joint, Single and Double Hexagon, $\frac{1}{4}$ in. Drive	16
1-10	Type III Sockets, Universal Joint, Single and Double Hexagon, $\frac{3}{8}$ in. Drive	17
1-10M	Type III Sockets, Universal Joint, Single and Double Hexagon, $\frac{3}{8}$ in. Drive	17
1-11	Type III Sockets, Universal Joint, Single and Double Hexagon, $\frac{1}{2}$ in. Drive	18
1-11M	Type III Sockets, Universal Joint, Single and Double Hexagon, $\frac{1}{2}$ in. Drive	18
2-1	Type I Sockets, Single Hexagon (6-Point), and Double Hexagon (12-Point), $\frac{1}{4}$ in. Drive	22
2-1M	Type I Sockets, Single Hexagon (6-Point), and Double Hexagon (12-Point), $\frac{1}{4}$ in. Drive	22
2-2	Type I Sockets, Single Hexagon (6-Point), and Double Hexagon (12-Point), $\frac{3}{8}$ in. Drive	23
2-2M	Type I Sockets, Single Hexagon (6-Point), and Double Hexagon (12-Point), $\frac{3}{8}$ in. Drive	23
2-3	Type I Sockets, Single Hexagon (6-Point), and Double Hexagon (12-Point), $\frac{1}{2}$ in. Drive	24
2-3M	Type I Sockets, Single Hexagon (6-Point), and Double Hexagon (12-Point), $\frac{1}{2}$ in. Drive	25
2-4	Type I Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), $\frac{3}{4}$ in. Drive	26
2-4M	Type I Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), $\frac{3}{4}$ in. Drive	27
2-5	Type I Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), 1 in. Drive	28
2-5M	Type I Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), 1 in. Drive	29
2-6	Type I Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), $1\frac{1}{2}$ in. Drive	30
2-7	Type I Sockets, Single Hexagon (6-Point), $2\frac{1}{2}$ in. Drive	32
2-8	Type I Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), Thin Wall, $\frac{1}{2}$ in. Drive	33
2-9	Type I Sockets, Single Hexagon (6-Point), and Double Hexagon (12-Point), Thin Wall, $\frac{3}{4}$ in. Drive	34
2-10	Type II Sockets, Single Square (4-Point) and Double Square (8-Point), $\frac{3}{8}$ in. Drive	34

2-11	Type II Sockets, Single Square (4-Point) and Double Square (8-Point), $\frac{1}{2}$ in. Drive	35
2-12	Type II Sockets, Single Square (4-Point) and Double Square (8-Point), $\frac{3}{4}$ in. Drive	35
2-13	Type VII Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), #5 Spline Drive	36
2-14	Type III Universal Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), $\frac{3}{8}$ in. Drive	37
2-14M	Type III Universal Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), $\frac{3}{8}$ in. Drive	37
2-15	Type III Universal Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), $\frac{1}{2}$ in. Drive	38
2-15M	Type III Universal Sockets, Single Hexagon (6-Point) and Double Hexagon (12-Point), $\frac{1}{2}$ in. Drive	38
2-16	Type IV, Bar Extension	39
2-17	Type V, Adaptors	39
2-18	Type VI, Universal Joint	39
10-1	Type I, Class 1, Handles, Hinged	42
10-2	Type I, Class 2, Handles, Ratchet, Reversible	43
10-3	Type I, Class 3, Style A, Handles, Speeder, Brace Type, Single Revolving Handgrip	44
10-4	Type I, Class 3, Style B, Handles, Speeder, Spin Type, Screwdriver Grip	44
10-5	Type I, Class 4, Handles, T, Sliding	45
10-6	Type II, Class 1, Attachments, Universal Joint	45
10-7	Type II, Class 2, Style A, Attachments, Extension Bar, Solid	46
10-8	Type II, Class 2, Style B, Attachments, Extension Bar, Flexible	47
10-9	Type II, Class 3, Style A, Attachments, Adaptor, Socket Wrench	47
10-10	Type II, Class 3, Style B, Attachments, Adaptor, Ratchet	48
12-1	Type I, Class 1, Styles A and B: Conventional Length Nutdriver With Solid Shaft	51
12-1M	Type I, Class 1, Styles A and B: Conventional Length Nutdriver With Solid Shaft	51
12-2	Type I, Class 2, Styles A and B: Conventional Length Nutdriver With Hollow Shaft	52
12-2M	Type I, Class 2, Styles A and B: Conventional Length Nutdriver With Hollow Shaft	52
12-3	Type II, Styles A and B: Stubby Length Nutdriver	53
12-3M	Type II, Styles A and B: Stubby Length Nutdriver	53
12-4	Type III: Miniature Handle Nutdriver	54
12-4M	Type III: Miniature Handle Nutdriver	54
12-5	Torsional Moment Test: Hexagonal Mandrel Dimensions and Maximum Depth of Mandrel Insertion	56
12-5M	Torsional Moment Test: Hexagonal Mandrel Dimensions and Maximum Depth of Mandrel Insertion	56
34-1	Type I, Class 1, Spark Plug Socket, Regular Length, Single Hexagon	60
34-1M	Type I, Class 1, Spark Plug Socket, Regular Length, Single Hexagon	60
34-2	Type I, Class 2, Spark Plug Socket, Long Length, Single Hexagon	60
34-3	Type II, Class 1, Universal Spark Plug Socket, Square Block, Single Hexagon, $\frac{3}{8}$ in. Drive	60
34-4	Type II, Class 2, Universal Spark Plug Socket, Ball Swivel, Single Hexagon, $\frac{3}{8}$ in. Drive	61
34-5	Depth of Mandrel Insertion	61
Nonmandatory Appendix		
A	Designations	63