American National Standard

for Cutting Tools —

Carbide-Tipped Masonry Drills and Blanks for Carbide-Tipped Masonry Drills

SPONSOR

Cemented Carbide Producers' Association

Approved November 14, 1994

ANSI American National Standards Institute
11 West 42nd Street,
New York, New York
10036

ANSI®
B212.15-1994
(R2000)
Revision and
Redesignation of
ANSI B94.12-1977

American National Standard
for Cutting Tools —

Carbide-Tipped Masonry Drills and Blanks for Carbide-Tipped Masonry Drills

Secretariat

Cemented Carbide Producers' Association

Approved November 14, 1994

American National Standards Institute, Inc.

American National Standard

Approval of an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgement of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether they have approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give any interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by

Cemented Carbide Producers' Association
30200 Detroit Road, Cleveland, Ohio 44145-1967

Printed in the United States of America

ANSI B212.15-1994

Contents

Foreword (This Foreword is not part of American National Standard B212.15-1994)

The material contained in this standard was developed by the Standards Committee of the Cemented Carbide Producers' Association after a thorough investigation of the factors involved in the field of carbide-tipped masonry drills and blanks for carbide-tipped masonry drills. It is based on sound engineering practice and reflects the requirements of the industry.

In the early 1960's, the committee developed three drafts on the subject, each of which was reviewed by interested parties and revised to incorporate the changes suggested. The final draft was submitted to the American Standards Association (later changed to USA Standards Institute and then to the American National Standards Institute) and was approved as an American Standard under the Existing Standards Method on June 22, 1962, as B82.1.

In 1966 a revision was submitted to and approved by the TC1, Carbide and Oxide Tools, of USA Standards Committee B94, Cutting Tools, Holders, Drivers and Bushings. It was later approved by the USA Standards Institute and redesignated B94.12 on March 28, 1968.

On September 21, 1983, the Cemented Carbide Producers' Association held an organizational meeting for the purpose of forming an Accredited Standards Committee for Cemented Carbides. All requirements for the formation of that committee, as contained in the American National Standards Institute Procedures for the Development and Coordination of American National Standards, effective September 1, 1982, were submitted to ANSI on October 5, 1983. The proposed committee was designated Accredited Standards Committee B212. Within the B212 Committee, Technical Subcommittee TC-1 was formed, whose scope is:

> the standardization of blanks and inserts composed of carbide, ceramic, and compacted diamond/CBN; the standardization of the tools and holders for these blanks and inserts as used for turning (both internal and external) including nomenclature, classification, size, tolerances, and identification.

The material contained in this standard was developed by the Technical Subcommittee TC-1 of Committee B212 after a thorough investigation of all factors involved. Suggested revisions which are contained in this standard were received from the Masonry Drill Bit Association. It is based on sound engineering practice and reflects the requirements of the industry. It was approved by the American National Standard Institute, Inc., on November 14, 1994, and designated, ANSI B212.15-1994.

This standard incorporates corrections requested by the Masonry Drill Bit Association. The changes were originally listed in the supplement to this standard, ANSI B212.15a-1995, which was approved by ANSI on October 6, 1995. The supplement will not be published as a separate document.

Suggestions for improvement of this standard will be welcome. They should be sent to the Cemented Carbide Producers' Association, 30200 Detroit Road, Cleveland, OH 44145-1967.

This standard was processed and approved for submittal to ANSI by Accredited Standards Committee for Cemented Carbide, B212. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the B212 Committee had the following members:

James R. Diener, Chairman
J. Jeffery Wherry, Secretary

Organization Represented	Name of Representative
Allison Transmission	Jack Sandler
The Association for Manufacturing Technology (AMT)	Anthony M. Bratkovich, P.E.
Carboloy, Inc.	Don Reinert
Caterpillar, Inc.	James R. Diener
Cemented Carbide Producers' Association	J. Jeffery Wherry
Greenleaf Corporation	Donald R. Hughes
Ingersoll Cutting Tool Company	Jim Schultz
Kennametal, Inc.	Lee Yothers
Machining Research, Inc.	John D. Christopher
Metal Cutting Tools, Inc.	Fred Shallenberger
Society of Carbide & Tool Engineers	to be announced
United States Cutting Tool Institute	Charles Stockinger
Valenite, Inc.	James J. Robinson

The TC-1 Technical Subcommittee of Committee B212, which was responsible for the development of this standard, had the following members:

James R. Diener, Chairman
J. Jeffery Wherry, Secretary

Dave Bell
Richard Black
Jeff Burton
Keith Crawford
Victor Gallagher
Donald R. Hughes
Roy Leverenz
Joseph Ley
Thomas Morey
Robert Packer
James Robinson
Mike Powell
Jack Sandler
Jim Schultz
Fred Shallenberger
Don Reinert
Gerry Rhodes
Gary W. Roderick
Lee Yothers

American National Standard
for Cutting Tools —

Carbide-Tipped Masonry Drills and Blanks for Carbide-Tipped Masonry Drills

1 Scope

This standard covers dimensional specifications and designations for carbide-tipped masonry drills, blanks for carbide-tipped masonry drills, and blanks for rotary hammer drills.

2 Definitions

2.1 carbide: A hardmetal solid produced by sintering a mixture of powdered metal carbide(s) and binder metal(s).

2.2 blank: An unfinished hard material product which can be further modified in size and design during a finishing process by grinding or other means.

3 Rotary carbide-tipped masonry drills and carbides

This clause covers rotary carbide-tipped masonry drills and corresponding blanks used in their manufacture. It does not include rotary hammer drills (see clause 4). Rotary masonry drills are designed primarily for use in portable electric drills in such material as green concrete, sandstone, and hard aggregate concrete. The actual diameter of the tip is larger than the nominal size to provide clearance for installation of toggle bolts, expansion anchors, and expansion shields. Finished diameters are given in tables 1a and 1b.

3.1 Rotary carbide-tipped masonry drills

3.1.1 General

Dimensional specifications, styles, and designations of carbide-tipped masonry drills are given in table 2.

3.1.2 Designation

Carbide-tipped masonry drills are designated by prefix letters FMD. The letters are followed by a number that designates the number of 1/16ths of an inch in the nominal drill diameter.

Example:

Drill designation: FMD 3

FMD = fluted masonry drill
3 = $^{3}/_{16}$" nominal drill diameter

3.2 Blanks with grinding stock for rotary carbide-tipped masonry drills

3.2.1 General

Blanks described in this subclause are primarily for masonry drills when the user intends to grind the diameter and cutting edges. However, they are not restricted to that use. Standard sizes and designations are given in table 3.

3.2.2 Designation

The blanks are designated by prefix letters MD. The letters are followed by a number that designates the number of 1/16ths of an inch in the nominal drill diameter.

Example:

Blank designation: MD 3

MD = Blank shape
3 = $^{3}/_{16}$" is the nominal drill diameter

3.3 Blanks without grinding stock for rotary carbide-tipped masonry drills

3.3.1 General

Blanks described in this subclause are primarily for masonry drills when the user intends to use them as mounted without grinding. Standard sizes and designations are given in table 4.

3.3.2 Designation

The blanks are designated by prefix letters MDG. The blank is functional without grinding when properly mounted. The letters are followed by a number that designates the number of 1/16ths of an inch in the nominal drill diameter.

Example:

Blank designation: MDG 3

MDG = Blank shape
3 = $^3/_{16}$" nominal drill diameter

4 Rotary hammer carbide drill blanks

A primary use of rotary hammer drills is for installing mechanical expansion and chemical anchors in masonry and concrete. The finished diameter of the carbide is very important for the development of anchor load capacities and both English (inch) and SI (millimeter) sizes are given. Finished diameters are given in tables 1a and 1b, respectively.

4.1 Blanks with grinding stock for rotary hammer carbide-tipped drills

4.1.1 General

Blanks described in this subclause are primarily for rotary hammer carbide-tipped drills when the user intends to grind the diameter and cutting edges. However, they are not restricted to that use. Standard sizes are given in tables 5a and 5b for inch and millimeter sizes, respectively.

4.1.2 Designation

The blanks are designated by prefix letters HD for inch sizes and HDM for millimeter sizes. The letters are followed by a number that designates the number of 1/16ths of an inch for inch sizes and millimeters for millimeter sizes of the nominal drill diameter.

Example:

Blank designation: HD 3

HD = Blank shape for inch sizes
3 = $^3/_{16}$" nominal drill diameter

Blank designation: HDM 7

HDM = Blank shape for millimeter sizes
7 = 7 mm nominal drill diameter

4.2 Blanks without grinding stock for rotary hammer carbide-tipped drills

4.2.1 General

Blanks described in this subclause are primarily for rotary hammer drills when the user intends to use them as mounted without grinding. Standard sizes are given in tables 6a and 6b for inch and millimeter sizes, respectively.

4.2.2 Designation

The blanks are designated by prefix letters HDG and HDMG for inch and millimeter sizes respectively. The letters are followed by a number that designates the number of 1/16ths of an inch for inch sizes and millimeters for millimeter sizes of the nominal drill diameter.

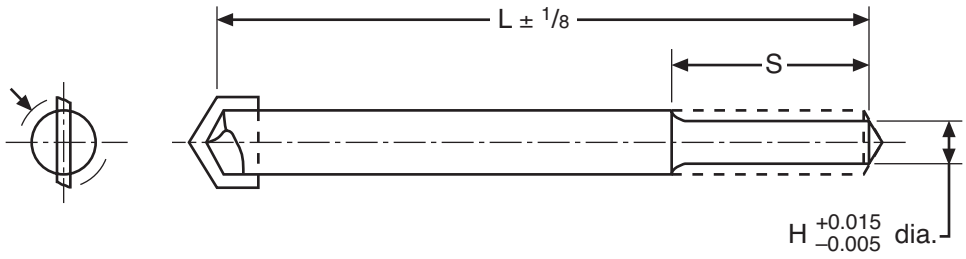
Example:

Blank designation: HDG 3

HDG = Blank shape for inch sizes
3 = $^3/_{16}$" nominal drill diameter

Blank designation: HDMG 7

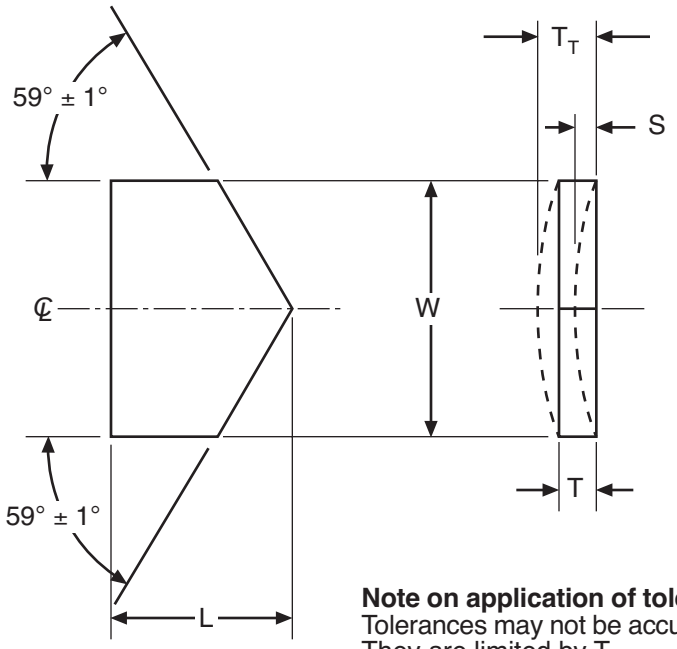
HDMG = Blank shape for millimeter sizes
7 = 7 mm nominal drill diameter



Type and shape of flute and relief angles of carbide to be manufacturer's practice.

Table 2 – Carbide-tipped masonry drills

Tool Designation	Nominal Drill Diameter	Length L	Minimum Shank Length S	Shank Diameter H	Blank Designation	
	in	in	in	in	MD	MDG
FMD 2	1/8	3	—	7/64	2	2
FMD 2.5	5/32	3	—	9/64	2.5	2.5
FMD 2.75	11/64	3	—	5/32	3	2.75
FMD 3	3/16	3 4 6	—	11/64	3	3
FMD 3.25	13/64	3	—	3/16	3.5	3.25
FMD 3.5	7/32	4	—	13/64	3.5	3.5
FMD 3.75	15/64	4	—	7/32	4	3.75
FMD 3.88	0.242	4	—	0.226	4	3.88
FMD 4	1/4	4 6 12 18 24	—	15/64	4	4
FMD 4.25	17/64	4	1 1/4	1/4	4.5	4.25
FMD 4.5	9/32	4 6	1 1/4	1/4	4.5	4.5
FMD 5	5/16	4 6 12 18 24	1 1/4	1/4	5	5
FMD 6	3/8	4 6 12 18 24	1 1/4	1/4	6	6
FMD 7	7/16	4 6 12 18	1 3/8	1/4	7	7
FMD 7-1	7/16	4 6 12 18	1 3/8	3/8	7	7
FMD 8	1/2	4 6 12 18 24	1 3/8	3/8	8	8
FMD 8-1	1/2	4 6 12 18 24	1 3/8	1/4	8	8
FMD 9	9/16	6 12 18	1 3/8	1/2	9	9
FMD 9-1	9/16	6 12 18	1 3/8	7/16	9	9
FMD 10	5/8	6 12 18 24	1 3/8	1/2	10	10
FMD 11	11/16	6 12 18	1 3/8	1/2	11	11
FMD 12	3/4	6	1 3/8	1/2	12	12
FMD 13	13/16	6	1 3/8	1/2	13	13
FMD 13.5	27/32	6	1 3/8	1/2	14	13.5
FMD 14	7/8	6 12 18	1 3/8	1/2	14	14
FMD 15	15/16	6	1 3/8	1/2	15	15
FMD 16	1	6 12 18	1 3/8	1/2	16	16
FMD 18	1 1/8	6 12 18	1 5/8	1/2	18	18
FMD 20	1 1/4	10 18	1 5/8	1/2	20	20
FMD 22	1 3/8	10	1 5/8	1/2	22	22
FMD 24	1 1/2	10 18	1 5/8	1/2	24	24



Note on application of tolerances:
Tolerances may not be accumulated.
They are limited by T_T.

Table 3 – Blanks with grinding stock for carbide-tipped masonry drills

Blank Designation	Nominal Drill Diameter*	T	W	L	S ≤	T_T not to exceed
	in	in	in	in	in	in
MD 2	1/8	$0.035^{+0.000}_{-0.003}$	$0.140^{+0.010}_{+0.020}$	$0.164^{+0.010}_{-0.000}$	0.003	0.037
MD 2.5	5/32	$0.035^{+0.000}_{-0.003}$	$0.171^{+0.010}_{+0.020}$	$0.180^{+0.010}_{-0.000}$	0.003	0.037
MD 3	3/16 (11/64)	$0.045^{+0.000}_{-0.003}$	$0.206^{+0.010}_{+0.020}$	$0.197^{+0.010}_{-0.000}$	0.003	0.047
MD 3.5	7/32 (13/64)	$0.045^{+0.000}_{-0.003}$	$0.237^{+0.010}_{+0.020}$	$0.220^{+0.010}_{-0.000}$	0.003	0.047
MD 4	1/4 (0.242, 15/64)	$0.060^{+0.000}_{-0.003}$	$0.268^{+0.010}_{+0.020}$	$0.220^{+0.010}_{-0.000}$	0.003	0.062
MD 4.5	9/32 (17/64)	$0.060^{+0.000}_{-0.003}$	$0.304^{+0.010}_{+0.020}$	$0.310^{+0.010}_{-0.000}$	0.003	0.062
MD 5	5/16	$0.060^{+0.000}_{-0.003}$	$0.335^{+0.010}_{+0.020}$	$0.310^{+0.010}_{-0.000}$	0.003	0.062
MD 6	3/8	$0.078^{+0.000}_{-0.003}$	$0.398^{+0.015}_{+0.030}$	$0.368^{+0.010}_{-0.000}$	0.003	0.080

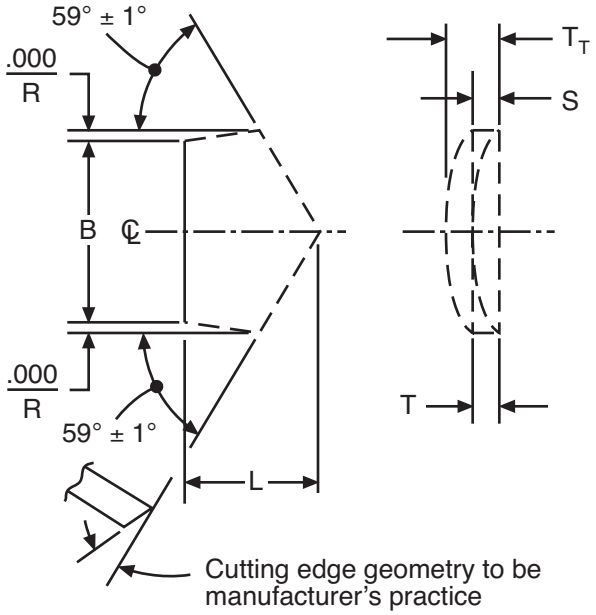
(continued)

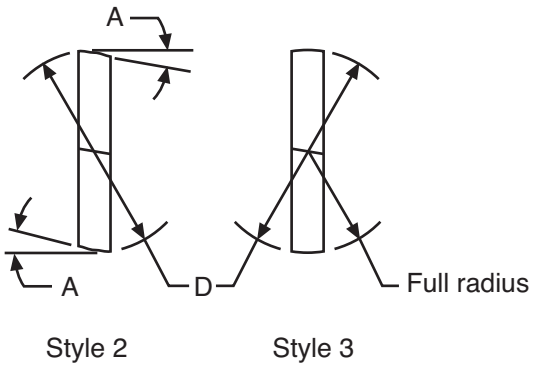
*For the nominal drill diameter shown in parenthesis, use the blank shown on the same line.

Table 3 (concluded)

Blank Designation	Nominal Drill Diameter*	T	W	L	S ≤	T_T not to exceed
	in	in	in	in	in	in
MD 7	7/16	0.078 $^{+0.000}_{-0.003}$	0.468 $^{+0.015}_{+0.030}$	0.468 $^{+0.015}_{-0.000}$	0.003	0.080
MD 8	1/2	0.091 $^{+0.000}_{-0.004}$	0.530 $^{+0.015}_{+0.030}$	0.472 $^{+0.015}_{-0.000}$	0.003	0.093
MD 9	9/16	0.091 $^{+0.000}_{-0.004}$	0.592 $^{+0.015}_{+0.030}$	0.472 $^{+0.015}_{-0.000}$	0.003	0.093
MD 10	5/8	0.091 $^{+0.000}_{-0.004}$	0.660 $^{+0.015}_{+0.030}$	0.598 $^{+0.015}_{-0.000}$	0.003	0.093
MD 11	11/16	0.091 $^{+0.000}_{-0.004}$	0.723 $^{+0.015}_{+0.030}$	0.598 $^{+0.015}_{-0.000}$	0.003	0.093
MD 12	3/4	0.091 $^{+0.000}_{-0.004}$	0.787 $^{+0.015}_{+0.030}$	0.598 $^{+0.015}_{-0.000}$	0.004	0.094
MD 13	13/16	0.091 $^{+0.000}_{-0.004}$	0.847 $^{+0.015}_{+0.030}$	0.728 $^{+0.015}_{-0.000}$	0.004	0.094
MD 14	7/8 (27/32)	0.091 $^{+0.000}_{-0.004}$	0.915 $^{+0.015}_{+0.030}$	0.728 $^{+0.015}_{-0.000}$	0.004	0.094
MD 15	15/16	0.091 $^{+0.000}_{-0.004}$	0.978 $^{+0.015}_{+0.035}$	0.728 $^{+0.020}_{-0.000}$	0.004	0.094
MD 16	1	0.122 $^{+0.000}_{-0.005}$	1.040 $^{+0.015}_{+0.035}$	0.728 $^{+0.020}_{-0.000}$	0.004	0.125
MD 18	1 1/8	0.122 $^{+0.000}_{-0.005}$	1.170 $^{+0.015}_{+0.035}$	0.858 $^{+0.020}_{-0.000}$	0.004	0.125
MD 20	1 1/4	0.122 $^{+0.000}_{-0.005}$	1.295 $^{+0.015}_{+0.035}$	0.858 $^{+0.020}_{-0.000}$	0.004	0.125
MD 22	1 3/8	0.122 $^{+0.000}_{-0.005}$	1.420 $^{+0.015}_{+0.035}$	1.045 $^{+0.020}_{-0.000}$	0.004	0.125
MD 24	1 1/2	0.122 $^{+0.000}_{-0.005}$	1.545 $^{+0.015}_{+0.035}$	1.045 $^{+0.020}_{-0.000}$	0.004	0.125

*For the nominal drill diameter shown in parenthesis, use the blank shown on the same line.





Note on application of tolerances:
Tolerances may not be accumulated. They are limited by T_T.

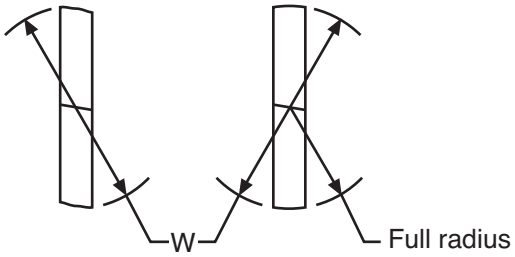
Table 4 – Blanks without grinding stock for carbide-tipped masonry drills

Blank Designation	Nom Drill Dia. in	D in	T in	L in	R in	B not to be less than in	S ≤ in	T_T not to exceed in	A °
MDG 2	1/8	0.140 +0.000 −0.006	0.035 +0.000 −0.003	0.164 +0.010 −0.000	0.002	0.132	0.003	0.037	9° ± 2°
MDG 2.5	5/32	0.171 +0.000 −0.006	0.035 +0.000 −0.003	0.180 +0.010 −0.000	0.002	0.163	0.003	0.037	9° ± 2°
MDG 2.75	11/64	0.187 +0.000 −0.006	0.045 +0.000 −0.003	0.197 +0.010 −0.000	0.002	0.179	0.003	0.047	9° ± 2°
MDG 3	3/16	0.206 +0.000 −0.008	0.045 +0.000 −0.003	0.197 +0.010 −0.000	0.002	0.196	0.003	0.047	8° ± 2°
MDG 3.25	13/64	0.221 +0.000 −0.008	0.045 +0.000 −0.003	0.220 +0.010 −0.000	0.002	0.211	0.003	0.047	8° ± 2°
MDG 3.5	7/32	0.237 +0.000 −0.008	0.045 +0.000 −0.003	0.220 +0.010 −0.000	0.002	0.227	0.003	0.047	8° ± 2°
MDG 3.75	15/64	0.252 +0.000 −0.008	0.060 +0.000 −0.003	0.220 +0.010 −0.000	0.002	0.242	0.003	0.062	8° ± 2°
MDG 3.88	0.242	0.260 +0.000 −0.008	0.060 +0.000 −0.003	0.220 +0.010 −0.000	0.002	0.250	0.003	0.062	8° ± 2°
MDG 4	1/4	0.268 +0.000 −0.008	0.060 +0.000 −0.003	0.220 +0.010 −0.000	0.002	0.258	0.003	0.062	8° ± 2°
MDG 4.25	17/64	0.284 +0.000 −0.008	0.060 +0.000 −0.003	0.260 +0.010 −0.000	0.003	0.273	0.003	0.062	8° ± 2°

(continued)

Table 4 (concluded)

Blank Designation	Nom Drill Dia. in	D in	T in	L in	R in	B not to be less than in	S ≤ in	T_T not to exceed in	A °
MDG 4.5	9/32	0.304 +0.000 −0.008	0.060 +0.000 −0.003	0.260 +0.010 −0.000	0.003	0.293	0.003	0.062	7° ± 2°
MDG 5	5/16	0.335 +0.000 −0.008	0.060 +0.000 −0.003	0.260 +0.010 −0.000	0.003	0.324	0.003	0.062	7° ± 2°
MDG 6	3/8	0.398 +0.000 −0.008	0.078 +0.000 −0.003	0.320 +0.010 −0.000	0.003	0.387	0.003	0.080	7° ± 2°
MDG 7	7/16	0.468 +0.000 −0.010	0.078 +0.000 −0.003	0.375 +0.015 −0.000	0.003	0.454	0.003	0.080	7° ± 2°
MDG 8	1/2	0.530 +0.000 −0.010	0.091 +0.000 −0.004	0.430 +0.015 −0.000	0.003	0.521	0.003	0.093	7° ± 2°
MDG 9	9/16	0.592 +0.000 −0.010	0.091 +0.000 −0.004	0.472 +0.015 −0.000	0.004	0.583	0.003	0.093	7° ± 2°
MDG 10	5/8	0.660 +0.000 −0.010	0.091 +0.000 −0.004	0.510 +0.015 −0.000	0.004	0.646	0.003	0.093	7° ± 2°
MDG 11	11/16	0.723 +0.000 −0.010	0.091 +0.000 −0.004	0.548 +0.015 −0.000	0.004	0.709	0.003	0.093	7° ± 2°
MDG 12	3/4	0.787 +0.000 −0.012	0.091 +0.000 −0.004	0.598 +0.015 −0.000	0.004	0.771	0.004	0.094	7° ± 2°
MDG 13	13/16	0.849 +0.000 −0.012	0.091 +0.000 −0.004	0.650 +0.015 −0.000	0.004	0.833	0.004	0.094	7° ± 2°
MDG 13.5	27/32	0.881 +0.000 −0.012	0.091 +0.000 −0.004	0.650 +0.015 −0.000	0.004	0.865	0.004	0.094	7° ± 2°
MDG 14	7/8	0.917 +0.000 −0.012	0.091 +0.000 −0.004	0.650 +0.015 −0.000	0.004	0.901	0.004	0.094	7° ± 2°
MDG 15	15/16	0.980 +0.000 −0.012	0.091 +0.000 −0.004	0.718 +0.015 −0.000	0.004	0.964	0.004	0.094	7° ± 2°
MDG 16	1	1.042 +0.000 −0.012	0.122 +0.000 −0.005	0.718 +0.015 −0.000	0.004	1.026	0.004	0.125	7° ± 2°
MDG 18	1 1/8	1.175 +0.000 −0.015	0.122 +0.000 −0.005	0.758 +0.020 −0.000	0.005	1.055	0.004	0.125	7° ± 2°
MDG 20	1 1/4	1.300 +0.000 −0.015	0.122 +0.000 −0.005	0.758 +0.020 −0.000	0.005	1.280	0.004	0.125	7° ± 2°
MDG 22	1 3/8	1.425 +0.000 −0.015	0.122 +0.000 −0.005	0.843 +0.020 −0.000	0.005	1.405	0.004	0.125	7° ± 2°
MDG 24	1 1/2	1.550 +0.000 −0.015	0.122 +0.000 −0.005	0.843 +0.020 −0.000	0.005	1.530	0.004	0.125	7° ± 2°



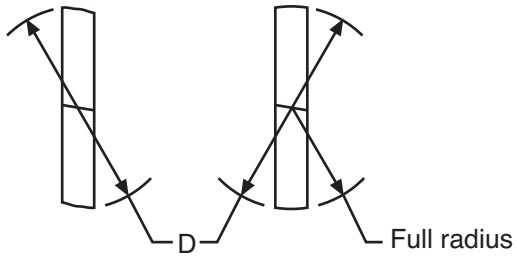
NOTE - Cutting edge geometry to be manufacturer's practice.

Table 5a – Blanks with grinding stock for rotary hammer carbide-tipped drills (in-lb units)

Blank designation	Nominal drill diameter in	W in	Tolerance range in
HD 2	1/8	0.140	+0.010 +0.020
HD 2.5	5/32	0.171	
HD 2.75	11/64	0.187	
HD 3	3/16	0.206	+0.010 +0.020
HD 3.25	13/64	0.221	
HD 3.5	7/32	0.237	
HD 3.75	15/64	0.252	
HD 4	0.242	0.260	
HD 4	1/4	0.268	
HD 4.25	17/64	0.284	
HD 4.5	9/32	0.304	
HD 5	5/16	0.335	
HD 6	3/8	0.398	
HD 7	7/16	0.468	+0.015 +0.030
HD 8	1/2	0.530	
HD 9	9/16	0.592	
HD 10	5/8	0.660	
HD 11	11/16	0.723	
HD 12	3/4	0.787	+0.015 +0.030
HD 13	13/16	0.849	
HD 13.5	27/32	0.881	
HD 14	7/8	0.917	
HD 15	15/16	0.980	
HD 16	1	1.042	
HD 18	1 1/8	1.175	+0.015 +0.035
HD 19	1 3/16	1.238	
HD 20	1 1/4	1.300	
HD 21	1 5/16	1.367	
HD 22	1 3/8	1.425	
HD 23	1 7/16	1.487	
HD 24	1 1/2	1.550	
HD 25	1 9/16	1.608	+0.015 +0.035
HD 26	1 5/8	1.675	
HD 28	1 3/4	1.792	
HD 32	2	2.028	

Table 5b – Blanks with grinding stock for rotary hammer carbide-tipped drills (SI units)

Blank designation	Nominal drill diameter W mm	Tolerance range mm
HDM 5	5	+0.65 +0.80
HDM 6	6	
HDM 7	7	+0.70 +0.85
HDM 8	8	
HDM 10	10	
HDM 11	11	+0.75 +0.90
HDM 12	12	
HDM 13	13	
HDM 14	14	
HDM 15	15	
HDM 16	16	
HDM 18	18	
HDM 19	19	+0.75 +0.91
HDM 20	20	
HDM 22	22	
HDM 24	24	
HDM 25	25	
HDM 28	28	
HDM 30	30	
HDM 32	32	+0.90 +1.05
HDM 34	34	
HDM 35	35	
HDM 37	37	
HDM 40	40	+0.95 +1.10
HDM 44	44	
HDM 52	52	+1.10 +1.25



NOTE - Cutting edge geometry to be manufacturer's practice.

Table 6a – Blanks without grinding stock for rotary hammer carbide-tipped drills (in-lb units)

Blank designation	Nominal drill diameter in	D in	Tolerance range in
HDG 2	1/8	0.140	+0.000 –0.006
HDG 2.5	5/32	0.171	
HDG 2.75	11/64	0.187	
HDG 3	3/16	0.206	+0.000 –0.008
HDG 3.25	13/64	0.221	
HDG 3.5	7/32	0.237	
HDG 3.75	15/64	0.252	
HDG 4	0.242	0.260	
HDG 4	1/4	0.268	
HDG 4.25	17/64	0.284	
HDG 4.4	9/32	0.304	
HDG 5	5/16	0.335	
HDG 6	3/8	0.398	
HDG 7	7/16	0.468	+0.000 –0.010
HDG 8	1/2	0.530	
HDG 9	9/16	0.592	
HDG 10	5/8	0.660	
HDG 11	11/16	0.723	
HDG 12	3/4	0.787	+0.000 –0.012
HDG 13	13/16	0.849	
HDG 13.5	27/32	0.881	
HDG 14	7/8	0.917	
HDG 15	15/16	0.980	
HDG 16	1	1.042	
HDG 18	1 1/8	1.175	+0.000 –0.015
HDG 19	1 3/16	1.238	
HDG 20	1 1/4	1.300	
HDG 21	1 5/16	1.367	
HDG 22	1 3/8	1.425	
HDG 23	1 7/16	1.487	
HDG 24	1 1/2	1.550	
HDG 25	1 9/16	1.608	+0.000 –0.020
HDG 26	1 5/8	1.675	
HDG 28	1 3/4	1.792	
HDG 32	2	2.028	

Table 6b – Blanks without grinding stock for rotary hammer carbide-tipped drills (SI units)

Blank designation	Nominal drill diameter D mm	Tolerance range mm
HDMG 5	5	+0.4 +0.15
HDMG 6	6	
HDMG 7	7	+0.45 +0.2
HDMG 8	8	
HDMG 10	10	
HDMG 11	11	+0.5 +0.2
HDMG 12	12	
HDMG 13	13	
HDMG 14	14	
HDMG 15	15	
HDMG 16	16	
HDMG 18	18	
HDMG 19	19	+0.55 +0.21
HDMG 20	20	
HDMG 22	22	
HDMG 24	24	
HDMG 25	25	
HDMG 28	28	
HDMG 30	30	
HDMG 32	32	+0.7 +0.25
HDMG 34	34	
HDMG 35	35	
HDMG 37	37	
HDMG 40	40	+0.8 +0.25
HDMG 44	44	
HDMG 52	52	+0.95 +0.3