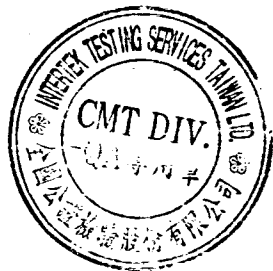




The American Society of
Mechanical Engineers

A N A M E R I C A N N A T I O N A L S T A N D A R D

PLIERS: LONG NOSE, LONG REACH



APR 16 2004

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FOREWORD

The American National Standards Committee B107, Socket Wrenches and Drives, under sponsorship of The American Society of Mechanical Engineers, was reorganized as an ASME Standards Committee and its title was changed to Hand Tools and Accessories. In 1996 its scope was expanded to address safety considerations.

The purposes of this Standard are to define general and dimensional data and safety considerations specifically applicable to long nose long reach pliers and to specify test methods to evaluate performance relating to the defined requirements.

This Standard is a revision of ASME B107.13M-1996 Pliers, Long Nose, Long Reach. Principal changes in this edition of the Standard are the inclusion of safety considerations and the use of references to B107.25M-1996, Pliers - Performance Test Methods. Updated finish requirements and dimensional data are included.

This revision was approved as an American National Standard on April 16, 2003.

The format of this standard is in accordance with "A Guide to Writing ASME Codes and Standards." Requests for interpretations of the technical requirements of this Standard should be expressed in writing to the Secretary, B107 Committee, at the address below.

Suggestions for the improvement of this Standard are welcome. They should be addressed to the Secretary, ASME B107 Committee, United Engineering Center, Three Park Avenue, New York, N.Y. 10016.

The requirements of this Standard become effective at the time of publication.

ASME STANDARDS COMMITTEE B107

Hand Tools and Accessories

(The following is the roster of the Committee at the time of approval of this Standard.)

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General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B107 Standards Committee
The American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Interpretations. Upon request, the B107 Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the B107 Standards Committee.

The request for interpretation should be clear and unambiguous. It is further recommended that the inquirer submit his/her request in the following format:

Subject: Cite the applicable paragraph number(s) and the topic of the inquiry.
Edition: Cite the applicable edition of the Standard for which the interpretation is being requested.
Question: Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. The inquirer may also include any plans or drawings, which are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Attending Committee Meetings. The B107 Standards Committee regularly holds meetings, which are open to the public. Persons wishing to attend any meeting should contact the Secretary of the B107 Standards Committee.

PLIERS: LONG NOSE, LONG REACH

1 SCOPE

This Standard provides performance and safety requirements for long nose, long reach pliers. Inclusion of dimensional and functional data in this Standard is not intended to imply that all products described herein are stock production sizes. Consumers are requested to consult with manufacturers concerning lists of stock production sizes.

This Standard may be used as a guide by state authorities and other regulatory bodies in the formulation of laws or regulations. It is also intended for voluntary use by establishments that use or manufacture the tools covered.

2 CLASSIFICATION

Pliers shall be identified by type, class, and style, as indicated in the following.

Type I: Flat Nose/Duck Bill

Class 1: Narrow Nose

Class 2: Medium Nose

Class 3: Wide Nose

Style A: Without Cutter

Style B: With Cutter

Class 4: Long Reach, Flat Nose

Type II: Double Round Nose

Type III: Round Nose

Class 1: Long Nose

Style A: With Cutter

Style B: Without Cutter

Class 2: Bent Nose

Class 3: Short Nose

Style A: With Cutter

Style B: Without Cutter

Class 4: Needle Nose

Style A: Without Cutter

Style B: With Cutter

3 NORMATIVE REFERENCES

The following is a list of publications referenced in this Standard.

ASME B107.25M-1996, Pliers—Performance Test Methods

Publisher: The American Society of Mechanical Engineers (ASME International), Three Park Avenue, New

York, NY 10016-5990; Order Department: 22 Law Drive, Box 2300, Fairfield, NJ 07007-2300

Guide to Hand Tools—Selection, Safety Tips, Proper Use and Care

Publisher: Hand Tools Institute (HTI), 25 North Broadway, Tarrytown, NY 10591

4 DEFINITIONS

Definitions of terms used within this Standard may be found in ASME B107.25M

5 REQUIREMENTS

The illustrations shown herein are descriptive, not restrictive, and are not intended to preclude the manufacture of pliers that are otherwise in accordance with this Standard. All figures are shown without comfort grips.

5.1 Materials

The materials used in the manufacture of the pliers shall be such as to produce pliers conforming to the requirements specified in this Standard.

5.2 Design

Pliers shall be similar to those depicted in the referenced figures and shall be proportioned in all parts to be strong, durable, and easy to operate. Pliers shall withstand applicable tests without cracking or breaking.

5.2.1 Type I—Flat Nose/Duck Bill. The jaws of Type I pliers shall taper as specified in the tables. The jaws shall contact each other at the outermost end when the pliers are in a closed position.

(a) *Class 1—Narrow Nose.* Class 1 pliers shall taper uniformly in thickness and in width from near the joint to the outermost end. Scoring on jaw gripping surfaces shall begin at the jaw tips and extend 25% to 33% of jaw length. The pliers shall conform to the requirements shown in Table 1 for the size specified and shall be similar to the illustration shown in Table 1.

(b) *Class 2—Medium Nose.* The width of the jaws shall be uniform throughout and shall taper in thickness from near the joint to the outermost end. Scoring on jaw gripping surfaces shall begin at the jaw tips and extend 25% to 33% of jaw length. The pliers shall conform to the requirements shown in Table 2 for the size specified and

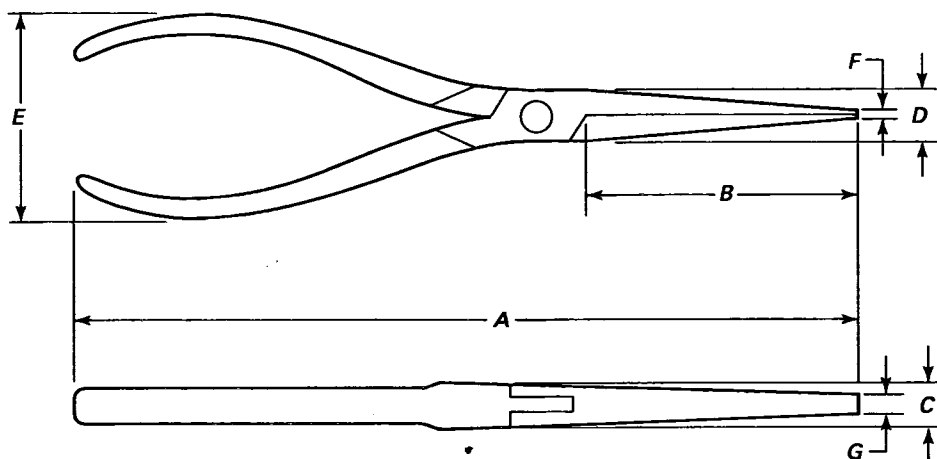


Table 1 Type I, Class 1, Flat Nose/Duck Bill, Narrow Nose

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Nose Tip Width, G in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N·m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
4 1/2 (114)	4.69 (119.1)	4.94 (125.4)	1.06 (27.0)	1.19 (30.2)	0.22 (5.6)	0.28 (7.1)	0.42 (10.7)	0.45 (11.5)	1.63 (41.3)	2.13 (54.0)	0.03 (0.8)	0.06 (1.6)	0.13 (3.2)	0.19 (4.8)	0.63 (15.9)	100 (11.3)
5 (127)	5.31 (134.9)	5.69 (144.5)	1.63 (41.3)	1.88 (47.6)	0.22 (5.6)	0.28 (7.1)	0.47 (11.9)	0.53 (13.5)	1.63 (41.3)	2.13 (54.0)	0.03 (0.8)	0.06 (1.6)	0.09 (2.4)	0.16 (4.0)	0.63 (15.9)	200 (22.6)
7 (178)	7.25 (184.2)	7.75 (196.9)	2.25 (57.2)	2.75 (69.9)	0.31 (7.9)	0.44 (11.1)	0.44 (11.1)	0.69 (17.5)	1.63 (41.3)	2.13 (54.0)	0.02 (0.4)	0.08 (2.0)	0.13 (3.2)	0.38 (9.5)	1.00 (25.4)	300 (33.9)

NOTE:

(1) "A" Dimensions in the table are without comfort grips.

shall be similar to the illustration shown in Table 2.

(c) **Class 3—Wide Nose.** The gripping jaws shall be of uniform width and shall taper in thickness from near the joint to the outermost end. Scoring on jaw gripping surfaces shall begin at the jaw tips and extend 25% to 33% of jaw length.

(1) Style A pliers (without cutter) shall conform to the requirements shown in Table 3 and shall be similar to the illustration shown in Fig. 1.

(2) Style B pliers (with cutter) shall conform to the requirements of para. 5.2.1(c)(1) except that the jaws have cutting edges on one side near the joint end. The cutting edges shall extend 20% [± 0.12 in. (3.2 mm)] of the length of the jaws.

(d) **Class 4—Long Reach, Flat Nose.** The jaws of Class 4 pliers shall taper uniformly in thickness and width from near the joint to the outermost end. The gripping surfaces of the jaws shall be scored. The length of the scoring shall be at least 0.5 in. (13 mm) back from the outermost end. The pliers shall conform to the requirements shown in Table 4 and shall be similar to the shown in Table 4.

5.2.2 Type II—Double Round Nose. Type II pliers shall be suitable for bending and shaping wire. The jaws shall be round in cross section so that the gripping surfaces are circular. The jaws shall taper uniformly from near the joint to the outermost end. With the pliers in a closed position, the jaws shall contact each other only at the outermost end. With the jaws parallel to each other, the distance between jaws shall be not less than 0.03 in. (0.8 mm). The pliers shall conform to the requirements shown in Table 5 for the size specified and shall be similar to the illustration shown in Table 5.

5.2.3 Type III—Round Nose. The jaws of Type III pliers shall be suitable for forming wire loops, handling small objects, and reaching into small openings. Each jaw shall be of half-round cross section so that the gripping surfaces are planar and straight. The jaws shall taper uniformly from near the joint section to the outermost end. Scoring on jaw gripping surfaces shall begin at the jaw tips and extend 25% to 33% of jaw length. The jaws shall contact each other at the outermost end when the pliers are in the closed position. If the nose design is elliptical,

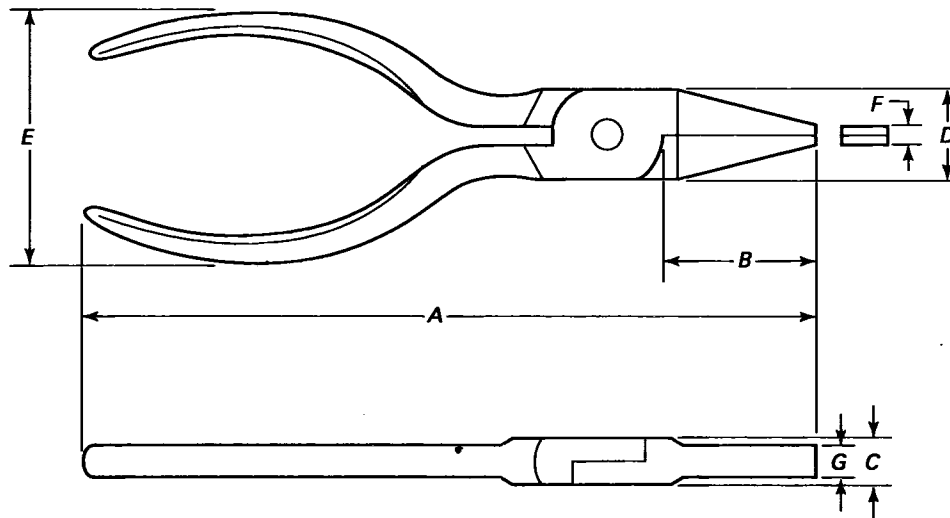


Table 2 Type I, Class 2, Flat Nose/Duck Bill, Medium Nose

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Nose Tip Width, G in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N-m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
4 (102)	4.38 (111.1)	4.88 (123.8)	0.75 (19.1)	1.25 (31.8)	0.19 (4.8)	0.38 (9.5)	0.31 (7.9)	0.56 (14.3)	1.69 (42.9)	2.19 (55.6)	0.03 (0.8)	0.13 (3.2)	0.06 (1.6)	0.19 (4.8)	0.38 (9.5)	100 (11.3)
5 (127)	5.00 (127.0)	5.50 (139.7)	1.13 (28.6)	1.63 (41.3)	0.31 (7.9)	0.50 (12.7)	0.44 (11.1)	0.69 (17.5)	1.50 (38.1)	2.00 (50.8)	0.08 (2.0)	0.19 (4.8)	0.28 (7.1)	0.41 (10.3)	0.50 (12.7)	200 (22.6)
6 (152)	6.00 (152.4)	6.50 (165.1)	1.25 (31.8)	1.75 (44.5)	0.31 (7.9)	0.50 (12.7)	0.44 (11.1)	0.69 (17.5)	1.75 (44.5)	2.25 (57.2)	0.08 (2.0)	0.19 (4.8)	0.28 (7.1)	0.41 (10.3)	0.63 (15.9)	300 (33.9)
7½ (191)	7.50 (190.5)	8.00 (203.2)	1.25 (31.8)	1.75 (44.5)	0.25 (6.4)	0.44 (11.1)	0.44 (11.1)	0.72 (18.3)	1.63 (41.3)	2.25 (57.2)	0.08 (2.0)	0.19 (4.8)	0.25 (6.4)	0.38 (9.5)	0.69 (17.5)	300 (33.9)

Note:

(1) "A" Dimensions in the table are without comfort grips.

Table 3 Type I, Class 3, Flat Nose/Duck Bill, Wide Nose

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N-m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
4 (102)	3.75 (95.3)	4.75 (120.7)	0.75 (19.1)	1.25 (31.8)	0.22 (5.6)	0.28 (7.1)	0.31 (7.9)	0.56 (14.3)	1.63 (41.3)	2.13 (54.0)	0.03 (0.8)	0.09 (2.4)	0.38 (9.5)	100 (11.3)
6 (152)	6.00 (152.4)	7.00 (177.8)	2.00 (50.8)	2.50 (63.5)	0.31 (7.9)	0.44 (11.1)	0.56 (14.3)	0.81 (20.6)	1.63 (41.3)	2.13 (54.0)	0.06 (1.6)	0.13 (3.2)	0.75 (19.1)	300 (33.9)

NOTE:

(1) "A" Dimensions in the table are without comfort grips.

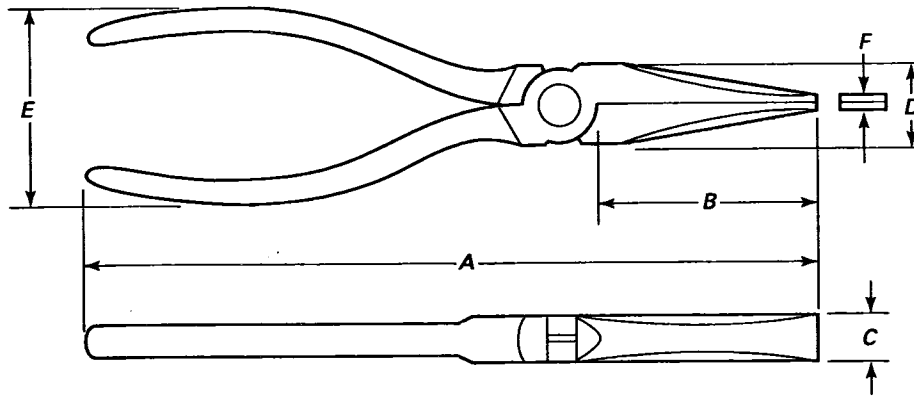


Fig. 1 Type I, Class 3, Style A, Flat Nose/Duck Bill, Wide Nose, Without Cutter

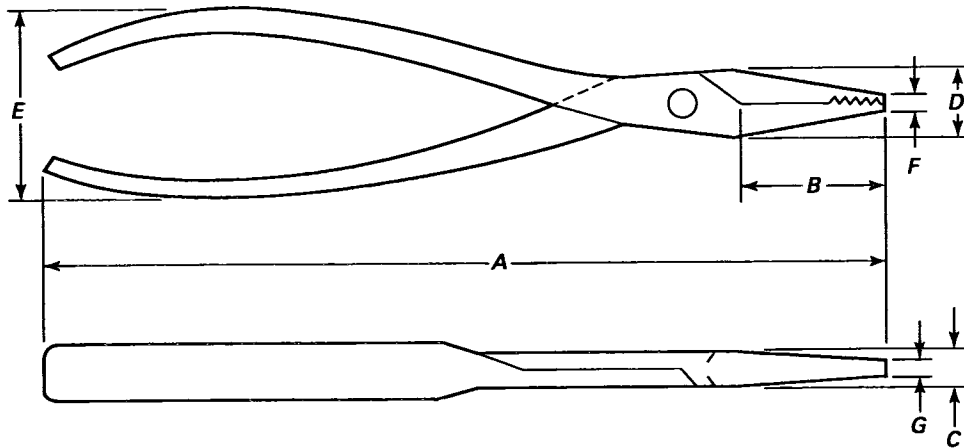


Table 4 Type I, Class 4, Flat Nose/Duck Bill, Long Reach, Flat Nose

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Nose Tip Width, G in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N-m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
8 (203)	7.50 (190.5)	8.50 (215.9)	1.19 (30.2)	1.69 (42.9)	0.31 (7.9)	0.56 (14.3)	0.44 (11.1)	0.69 (17.5)	1.63 (41.3)	2.25 (57.2)	0.08 (2.0)	0.17 (4.4)	0.25 (6.4)	0.38 (9.5)	1.50 (38.1)	300 (33.9)

NOTE:

(1) "A" Dimensions in the table are without comfort grips.

use dimensions F and G only. If the nose design is circular, use dimension F only.

(a) Class 1: Long Nose

(1) The jaws of Style A pliers (with cutter) shall be provided with cutting edges on one side adjacent to the joint and extending 25% [± 0.12 in. (3.2 mm)] of the length of the jaws. With the pliers in the closed position, the cutting edges shall contact each other throughout the entire length. The pliers shall conform to the requirements shown in Table 6 for the size specified and shall be similar to the illustration shown in Table 6.

(2) Style B pliers (without cutter) shall conform to the requirements shown in Table 7 for the size specified and shall be similar to the illustration shown in Table 7.

(b) Class 2—Bent Nose. The jaws of Class 2 pliers shall be of half-round cross section so that the gripping surfaces are planar. The jaws shall be curved and shall taper from near the joint section or the bend to the outermost end. The pliers shall conform to the requirements shown in Table 8 for the size specified and shall be similar to the illustration shown in Table 8.

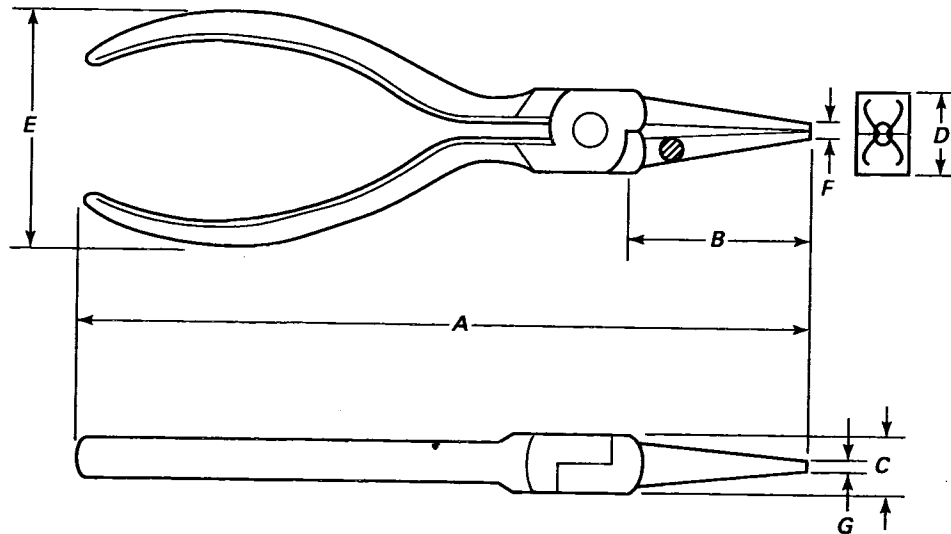


Table 5 Type II, Double Round Nose

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Nose Tip Width, G in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N-m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
4½ (114)	4.25 (108.0)	4.75 (120.7)	0.63 (15.9)	0.88 (22.2)	0.19 (4.8)	0.31 (7.9)	0.41 (10.3)	0.47 (11.9)	1.75 (44.5)	2.00 (50.8)	0.09 (2.4)	0.16 (4.0)	0.05 (1.2)	0.08 (2.0)	0.38 (9.5)	100 (11.3)
6 (152)	5.75 (146.1)	6.75 (171.5)	1.13 (28.6)	1.63 (41.3)	0.38 (9.5)	0.50 (12.7)	0.44 (11.1)	0.81 (20.6)	1.63 (41.3)	2.13 (54.0)	0.13 (3.2)	0.25 (6.4)	0.06 (1.6)	0.13 (3.2)	0.63 (15.9)	300 (33.9)

NOTE:

(1) "A" Dimensions in the table are without comfort grips.

(c) *Class 3—Short Nose.* The jaws of Class 3 pliers shall be suitable for forming wire loops, handling small objects, and reaching into small openings. Each jaw shall be of half-round cross section so that the gripping surfaces are planar and straight. The jaws shall taper uniformly from near the joint section to the outermost end.

(1) The jaws of Style A pliers (with cutter) shall be provided with cutting edges on one side adjacent to the joint and extending 25% [±0.12 in. (3.2 mm)] of the length of the jaws. The pliers shall conform to the requirements shown in Table 9 for the size specified and shall be similar to the illustration shown in Table 9.

(2) Style B pliers (without cutter) shall conform to the requirements shown in Table 10 for the size specified and shall be similar to the illustration shown in Table 10 or Fig. 2.

(d) *Class 4—Needle Nose*

(1) The jaws of Style A pliers (without cutter) shall be straight and shall taper from near the joint section to the outermost end. The pliers shall conform to the requirements shown in Table 11 and shall be similar to those shown in Fig. 3.

(2) Style B pliers (with cutter) shall conform to the requirements of para 5.2.3(d)(1) except that the jaws shall be provided with cutting edges on one side adjacent to the joint and extending 25% [±0.12 in. (3.2 mm)] of the length of the jaws.

5.3 Cutting

Pliers with cutting edges shall pass the tests in para. 6.1.

5.4 Handles

5.4.1 Characteristics. Handles shall be shaped to afford a comfortable grip, and shall be free from rough edges and sharp corners to prevent injury to the hand. Handles shall have a hardness from 35 to 50 HRC or equivalent. Ends of handles shall not touch when the jaws are in a closed position. Hand gripping surfaces shall be smooth, knurled, impressed, or furnished with comfort grips.

5.4.2 Set. Permanent set of the handles for all types shall not exceed 0.04 in. (1.0 mm) when subjected to the handle load test specified in para. 6.3.

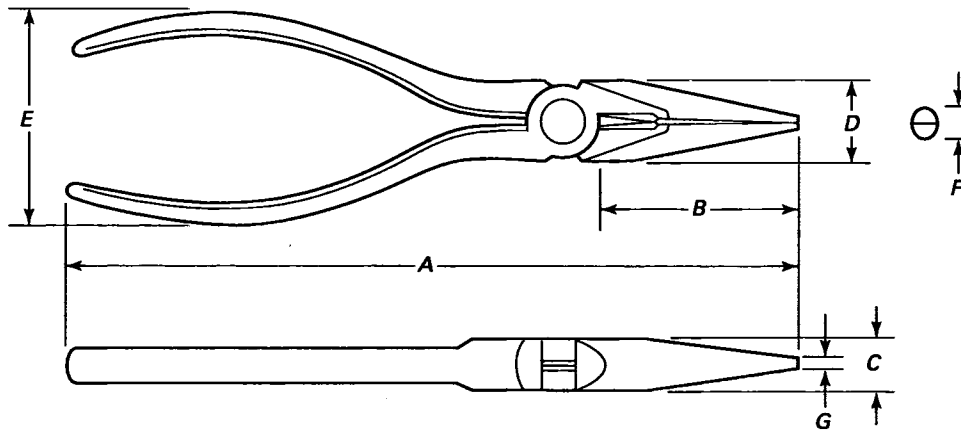


Table 6 Type III, Class 1, Style A, Round Nose, Long Nose, With Cutter

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Nose Tip Width, G in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N-m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
5 (127)	5.38 (136.5)	5.75 (146.1)	1.44 (36.5)	1.69 (42.9)	0.25 (6.4)	0.50 (12.7)	0.47 (11.9)	0.72 (18.3)	1.63 (41.3)	2.13 (54.0)	0.06 (1.6)	0.13 (3.2)	0.06 (1.6)	0.13 (3.2)	0.75 (19.1)	200 (22.6)
6 (152)	6.00 (152.4)	6.75 (171.5)	1.75 (44.5)	2.25 (57.2)	0.31 (7.9)	0.44 (11.1)	0.56 (14.3)	0.81 (20.6)	1.63 (41.3)	2.13 (54.0)	0.09 (2.4)	0.16 (4.0)	0.06 (1.6)	0.13 (3.2)	1.00 (25.4)	300 (33.9)
7 (178)	6.80 (172.7)	8.00 (203.2)	2.19 (55.6)	2.81 (71.4)	0.34 (8.7)	0.41 (10.3)	0.70 (17.8)	0.78 (19.8)	1.63 (41.3)	2.53 (64.3)	0.11 (2.8)	0.20 (5.1)	0.06 (1.6)	0.13 (3.2)	1.13 (28.6)	300 (33.9)
8 (203)	7.81 (198.4)	8.81 (223.8)	2.00 (50.8)	2.63 (66.7)	0.44 (11.1)	0.56 (14.3)	0.81 (20.6)	1.19 (30.2)	1.63 (41.3)	2.53 (64.3)	0.09 (2.4)	0.20 (5.1)	0.09 (2.4)	0.16 (4.0)	1.13 (28.6)	300 (33.9)

NOTE:

(1) "A" Dimensions in the table are without comfort grips.

5.4.3 Comfort Grips. When comfort grips are furnished on handles, they shall be made of a polymer of rubber, plastic, or other suitable material capable of withstanding long, hard usage without deteriorating or rubbing off, and shall pass the solvent test specified in para. 6.4. The comfort grips shall remain permanently attached under normal use of the tool.

WARNING: COMFORT GRIPS ARE NOT INTENDED TO GIVE ANY DEGREE OF PROTECTION AGAINST ELECTRIC SHOCK AND SHALL NOT BE USED ON OR NEAR LIVE ELECTRIC CIRCUITS.

5.5 Joints

Joints shall pass the test specified in para. 6.6. Fastener hardness shall be from 25 to 50 HRC except when the fastener receives a case hardening treatment in addition to the through hardening, a maximum hardness equivalent to 60 HRC shall be permitted.

5.6 Jaws

5.6.1 Jaw Openings. The ends of the jaws shall open to the respective minimum distance as specified for the

individual types and classes of pliers. Pliers shall pass the test in para. 6.5. Beyond the minimum opening distance specified, the jaws may open at increased loads until the positive stop of the tool is engaged.

5.6.2 Cutting Edge Hardness. Cutting edges shall have a hardness of 55 to 65 HRC or equivalent. The balance of the jaw area shall have a minimum hardness of 35 HRC.

5.6.3 Scored Surfaces. Scored surfaces, where specified for gripping jaws, shall have visually sharp projections and be uniform in appearance.

5.7 Springs

When a spring (or springs) is furnished, it shall be capable of opening the pliers jaws the minimum distance specified in the tables for the individual type and class of pliers.

5.8 Finish

Surfaces shall have a rust preventive treatment and be essentially free from pits, nodules, burrs, cracks, and

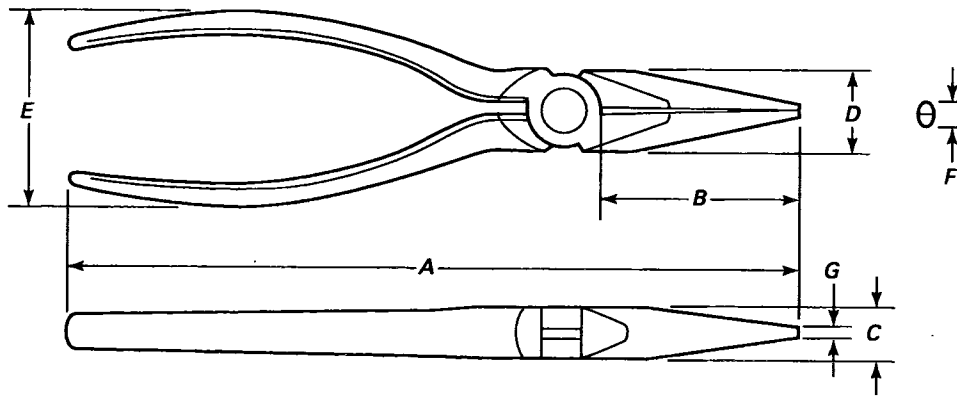


Table 7 Type III, Class 1, Style B, Round Nose, Long Nose, Without Cutter

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Nose Tip Width, G in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N-m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
4½ (114)	4.69 (119.1)	4.94 (125.4)	1.06 (27.0)	1.19 (30.2)	0.22 (5.6)	0.28 (7.1)	0.41 (10.3)	0.47 (11.9)	1.75 (44.5)	2.00 (50.8)	0.05 (1.3)	0.09 (2.4)	0.04 (1.0)	0.08 (2.0)	0.75 (19.1)	100 (11.3)
5 (127)	5.38 (136.5)	5.75 (146.1)	1.44 (36.5)	1.69 (42.9)	0.25 (6.4)	0.50 (12.7)	0.47 (11.9)	0.72 (18.3)	1.63 (41.3)	2.13 (54.0)	0.05 (1.3)	0.16 (4.0)	0.04 (1.0)	0.16 (4.0)	0.75 (19.1)	200 (22.6)
6 (152)	5.90 (149.9)	6.75 (171.5)	1.67 (42.4)	2.25 (57.2)	0.31 (7.9)	0.44 (11.1)	0.54 (13.7)	0.81 (20.6)	1.63 (41.3)	2.32 (58.9)	0.05 (1.3)	0.16 (4.0)	0.04 (1.0)	0.13 (3.2)	1.00 (25.4)	300 (33.9)
7 (178)	6.80 (172.7)	8.00 (203.2)	2.19 (55.6)	2.81 (71.4)	0.31 (7.9)	0.44 (11.1)	0.56 (14.3)	0.94 (23.8)	1.63 (41.3)	2.53 (64.3)	0.06 (1.5)	0.20 (5.1)	0.06 (1.6)	0.13 (3.2)	1.13 (28.6)	300 (33.9)

NOTE:

(1) "A" Dimensions in the table are without comfort grips.

other conditions that would adversely affect the performance or safety of the tool. When provided, coatings shall be adherent, smooth, continuous, and free from any conditions that would interfere with their protective value, safety, and function.

5.9 Marking

Pliers shall be marked in a plain and permanent manner with the manufacturer's name or with a trademark of such known character that the source of manufacture and country of origin shall be readily determined. The marking shall be as permanent as the normal life expectancy of the pliers to which it is applied (providing the surface to which it was applied has not been subjected to a fretting or abrading action) and be capable of withstanding the cleaning procedures normally experienced during its intended use.

6 TEST PROCEDURES

WARNING: MANY OF THE TESTS REQUIRED HEREIN ARE INHERENTLY HAZARDOUS AND ADEQUATE SAFEGUARDS FOR PERSONNEL AND PROPERTY SHALL BE EMPLOYED IN CONDUCTING THESE TESTS.

6.1 Cut Test

Cut tests shall be performed in accordance ASME B107.25M, para. 5.2.

6.1.1 Steel Wire. Steel wire for cut tests shall be 0.060 in.–0.064 in. (1.52 mm–1.63 mm) uncoated, single-strand steel wire having a minimum tensile strength of 180,000 psi (1 240 MPa). Wire being cut may be loosely supported at the jaws by the operator in the manner ordinarily employed. Three cuts shall be made at the joint end of the cutting edges using a load to create a moment not to exceed 300 lbf-in. The pliers shall completely sever the wire.

6.1.2 Paper. Following wire cut test, the paper cut test shall be performed in accordance with ASME B107.25M, para. 5.2.2. The cutting edges shall completely and cleanly cut the bond paper. Load shall be applied at the point of maximum handle curvature (normal gripping position).

6.2 Hardness Test

Hardnesses specified herein shall be tested in accordance with ASME B107.25M, para. 5.3.

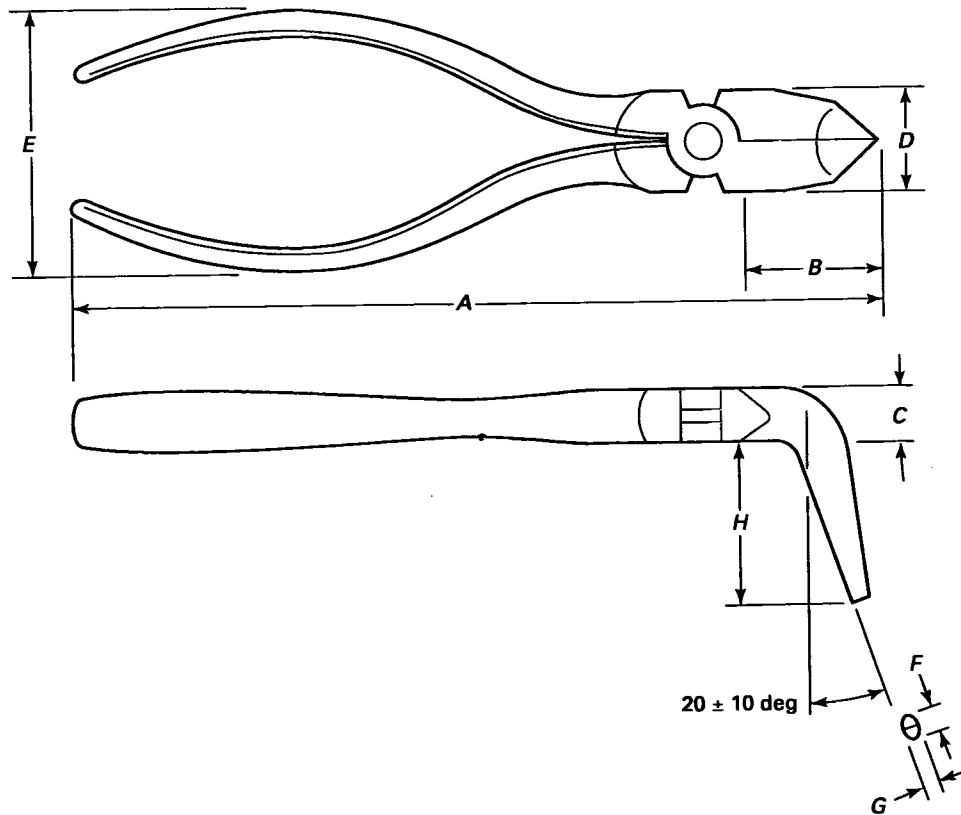


Table 8 Type III, Class 2, Round Nose, Bent Nose

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Nose Tip Width, G in. (mm)		Bent Nose Length, H in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N·m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
4½ (114)	4.00 (101.6)	5.00 (127.0)	0.50 (12.7)	1.00 (25.4)	0.19 (4.8)	0.31 (7.9)	0.25 (6.4)	0.50 (12.7)	1.75 (44.5)	2.00 (50.8)	0.09 (2.4)	0.16 (4.0)	0.06 (1.6)	0.13 (3.2)	0.38 (9.5)	0.63 (15.9)	0.50 (12.7)	100 (11.3)
6 (152)	5.50 (139.7)	6.80 (172.7)	1.25 (31.8)	1.90 (48.3)	0.31 (7.9)	0.44 (11.1)	0.56 (14.3)	0.81 (20.6)	1.63 (41.3)	2.53 (64.3)	0.09 (2.4)	0.20 (5.1)	0.06 (1.6)	0.13 (3.2)	0.63 (16.0)	1.50 (38.1)	0.50 (12.7)	300 (33.9)

NOTE:

(1) "A" Dimensions in the table are without comfort grips.

6.3 Handle Load Test

Permanent set shall be tested in accordance with ASME B107.25M, para. 5.1. Loads are specified in the applicable tables herein. Loads shall be applied at the point of maximum handle curvature (normal gripping position). Comfort grips, when provided, shall be removed prior to testing. If necessary, a piece of flat stock at a minimum hardness of 40 HRC may be inserted between the jaws to prevent handles from contacting each other during the test.

6.4 Comfort Grip Solvent Test

Comfort grips shall be tested in accordance with ASME B107.25M, para. 5.5.1.

6.5 Jaw Opening Test

Pliers shall be tested in accordance with ASME B107.25M, para. 5.4.3. The force required to open the jaws of the pliers to the respective minimum distance specified in the tables for the individual types, classes, and sizes shall not be greater than that shown in Table 12.

6.6 Joint Integrity Test

Pliers shall be tested in accordance with ASME B107.25M para 5.4.1 using a minimum of 1.50 lbf (6.7N). Maximum allowable play shall be 0.01 in. per in. (0.025 mm per 25.4 mm) of handle length measured from the pivot to end of handle.

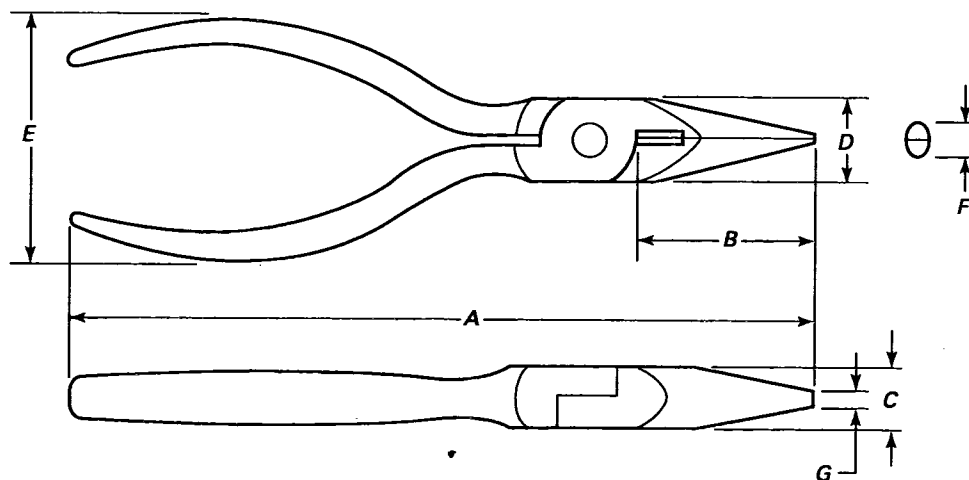


Table 9 Type III, Class 3, Style A, Round Nose, Short Nose, With Cutter

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Nose Tip Width, G in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N-m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
5 (127)	4.63 (117.5)	5.13 (130.2)	0.88 (22.2)	1.38 (34.9)	0.19 (6.4)	0.31 (7.9)	0.38 (9.5)	0.63 (15.9)	1.75 (44.5)	2.00 (50.8)	0.06 (1.6)	0.13 (3.2)	0.03 (0.8)	0.09 (2.4)	0.38 (9.5)	200 (22.6)
6 (152)	6.00 (152.4)	6.75 (171.5)	1.25 (31.8)	1.75 (44.5)	0.38 (9.5)	0.50 (12.7)	0.50 (12.7)	0.75 (19.1)	1.63 (41.3)	2.13 (54.0)	0.06 (1.6)	0.13 (3.2)	0.03 (0.8)	0.09 (2.4)	0.63 (15.9)	300 (33.9)

NOTE:

(1) "A" Dimensions in the table are without comfort grips.

7 SAFETY REQUIREMENTS AND LIMITATIONS OF USE

Instructors and employers shall stress proper use and safety in the use of pliers, information about which can be found in the HTI publication, Guide to Hand Tools — Selection Safety Tips, Proper Use and Care

8 DESIGNATIONS

Pliers shall be designated by the following data in the sequence shown:

(a) Type

(b) Class

(c) Nominal Size

(d) Style

(e) *Handles*. If comfort grip handles are required, it should be noted on the procurement document

(f) *Springs*. If springs are required, it should be noted on the procurement document

(g) *Scored Jaws*. If unscored jaws are permissible and/or required, it should be noted on the procurement document.

Example: Long nose pliers, Type III, Class 1, 6 in., Style A, with comfort grips.

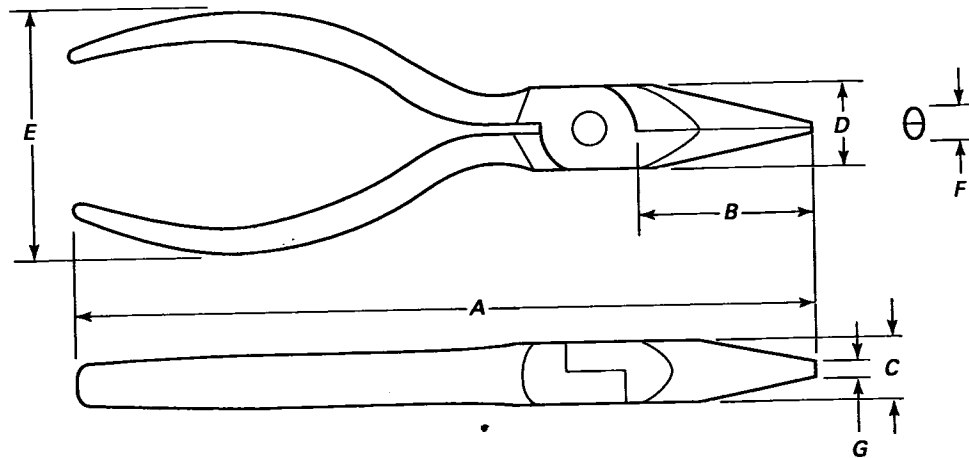


Table 10 Type III, Class 3, Style B, Round Nose, Short Nose, Without Cutter

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Nose Tip Width, G in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N-m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
4½ (114)	4.63 (117.5)	4.88 (123.8)	0.83 (21.1)	1.06 (27.0)	0.22 (5.6)	0.28 (7.1)	0.36 (9.1)	0.39 (9.9)	1.63 (41.3)	2.13 (54.0)	0.08 (2.0)	0.11 (2.8)	0.03 (0.8)	0.09 (2.4)	0.38 (9.5)	100 (11.3)
5 (127)	5.06 (128.6)	5.44 (138.1)	1.00 (25.4)	1.25 (31.8)	0.28 (7.1)	0.34 (8.7)	0.47 (11.9)	0.53 (13.5)	1.63 (41.3)	2.13 (54.0)	0.05 (1.2)	0.08 (2.0)	0.05 (1.2)	0.08 (2.0)	0.63 (15.9)	200 (22.6)
6 (152)	6.00 (152.4)	6.75 (171.5)	1.25 (31.8)	1.75 (44.5)	0.38 (9.5)	0.50 (12.7)	0.50 (12.7)	0.75 (19.1)	1.63 (41.3)	2.13 (54.0)	0.06 (1.6)	0.13 (3.2)	0.03 (0.8)	0.13 (3.2)	0.63 (15.9)	300 (33.9)
8 (178)	7.50 (190.5)	8.00 (203.2)	0.94 (23.8)	1.44 (36.5)	0.38 (9.5)	0.50 (12.7)	0.44 (11.1)	0.69 (17.5)	1.63 (41.3)	2.13 (54.0)	0.06 (1.6)	0.13 (3.2)	0.03 (0.8)	0.13 (3.2)	0.75 (19.1)	300 (33.9)

NOTE:

(1) "A" Dimensions in the table are without comfort grips.

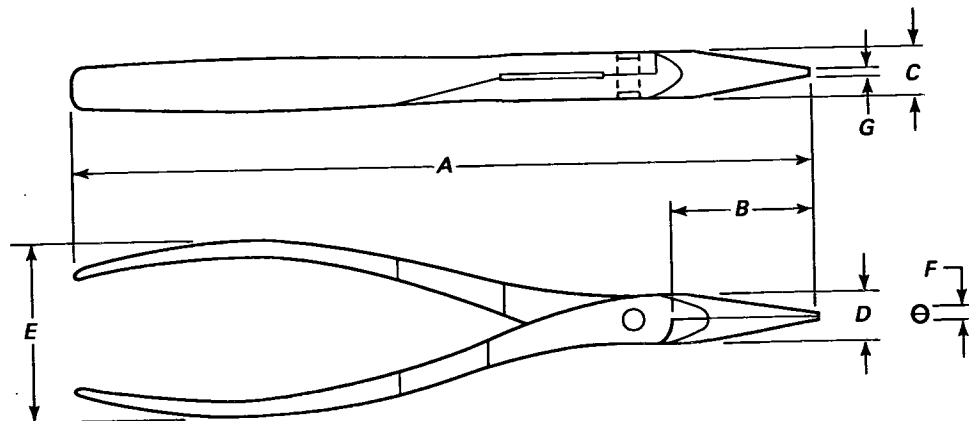


Fig. 2 Type III, Class 3, Style B, Round Nose, Short Nose, Without Cutter (Optional Design)

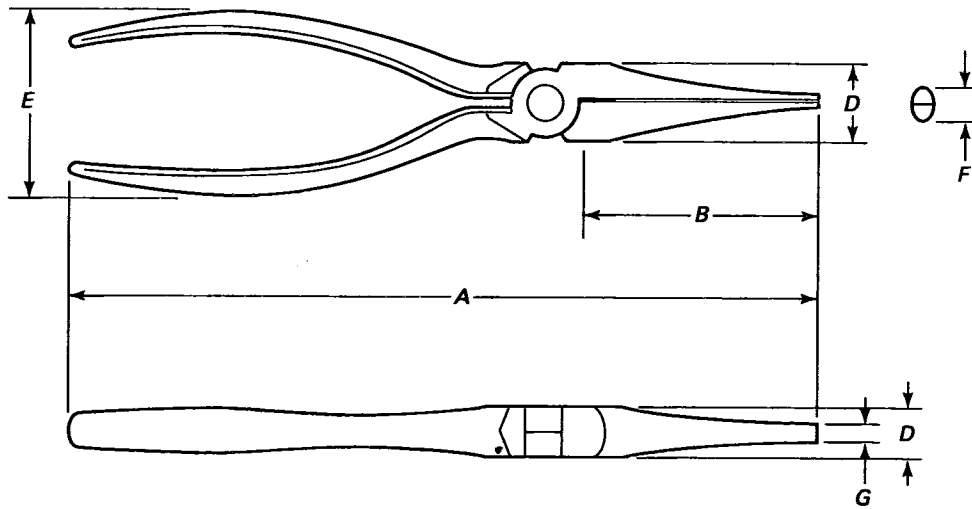


Fig. 3 Type III, Class 4, Style A, Round Nose, Needle Nose, Without Cutter

Table 11 Type III, Class 4, Round Nose, Needle Nose

Nominal Size in. (mm)	Overall Length, A in. (mm) [Note (1)]		Jaw Length, B in. (mm)		Joint Thickness, C in. (mm)		Joint Width, D in. (mm)		Handle Span, E in. (mm)		Nose Tip Thickness, F in. (mm)		Nose Tip Width, G in. (mm)		Min. Jaw Opening in. (mm)	Min. Handle Moment lbf-in. (N-m)
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
5 (127)	5.22 (132.6)	5.59 (142.1)	1.63 (41.3)	1.88 (47.6)	0.28 (7.1)	0.34 (8.7)	0.47 (11.9)	0.53 (13.5)	1.50 (38.1)	2.00 (50.8)	0.05 (1.2)	0.08 (2.0)	0.05 (1.2)	0.08 (2.0)	1.00 (25.4)	200 (22.6)
6½ (165)	6.00 (152.4)	7.00 (177.8)	2.06 (52.4)	2.69 (68.3)	0.28 (7.1)	0.41 (10.3)	0.56 (14.3)	0.88 (22.2)	1.50 (38.1)	2.25 (57.2)	0.06 (1.6)	0.19 (4.8)	0.02 (0.4)	0.14 (3.6)	1.50 (38.1)	300 (33.9)

NOTE:

(1) "A" Dimensions in the table are without comfort grips.

Table 12 Jaw Opening Test

Nominal Size, in. (mm)	Max Force Applied to Handle, lbf (N)
4 to 4¾ (102 to 121)	1 (4.4)
5 (127)	2 (8.9)
6 (152)	3 (13.3)
7 (178)	3 (13.3)
8 (203)	3 (13.3)

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