ASME B107.13M-1996
(Revision of ASME B107.13M-1991)

PLIERS — LONG NOSE, LONG REACH

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

PLIERS — LONG NOSE, LONG REACH

1 SCOPE

This Standard is intended to cover the general dimensional and functional characteristics of 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.

2 CLASSIFICATION

The following types, classes, and styles of pliers are covered in this Standard.

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 APPLICABLE STANDARDS

ASTM D 1240-86, Standard Method of Test for Indentation Hardness of Rubber and Plastics by Means of a Durometer

ASTM E 18-89, Standard Methods of Load Verification of Testing Machines

ASTM E 18-89A, Tests for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

Federal Specification TT-S-735, Standard Test Fluids; Hydrocarbon

ANSI/ASME B46.1-85, Surface Texture

4 REQUIREMENTS

4.1 Illustrations

The illustrations shown herein are descriptive and nonrestrictive, and are not intended to preclude the manufacture of slip joint pliers which are otherwise in accordance with this Standard.

4.2 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.

4.3 Design

Pliers shall be similar to those depicted in the referenced figures and shall be proportioned in all parts so as to be strong, durable, and easy to operate.

4.4 Cutting

4.4.1 Requirements. Pliers with cutting edges are designed to cut all types of wire (see para. 5.1.1).

4.4.2 Wire Cutting. All types and classes of pliers with cutting edges covered in this Standard shall cut wire without any assistance, such as bending, pulling, or twisting, and there shall be no visible deformation or damage to the cutting edges when tested as specified in paras. 5.1.1 and 5.1.2.

4.4.3 Paper Cutting. Following the wire cutting test (see paras. 5.1.1 and 5.1.2), all types and classes

of pliers with cutting edges shall completely and cleanly cut bond paper without any assistance such as bending, pulling, or twisting.

4.5 Handles

4.5.1 Characteristics. Handles of pliers shall be so shaped as to afford a comfortable grip, and shall be free from rough edges and sharp corners. Inner handle surfaces shall be well rounded or beveled so as to prevent injury to the hand. Handles shall have a 35 to 50 HRC hardness. Ends of handles shall not touch when the jaws are in a closed position. Outer hand gripping surfaces shall be smooth, knurled, impressed, or furnished with comfort grips.

4.5.2 Set. Permanent set of the handles for all types shall not exceed 0.04 in. (1.0 mm) when subjected to the applicable maximum handle load test specified in para. 5.3 and applicable tables.

4.5.3 Comfort Grips. When comfort grips are furnished on pliers 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 meet the solvent test specified in para. 5.4. The comfort grips shall remain permanently attached under normal use of the tool.

CAUTION: The comfort grips on handles are not intended to give any degree of protection against electric shock and shall not be used on live electric circuits.

4.6 Joints

Pliers joints shall not be excessively loose. The HRC value of the fastener shall not be less than 25 nor more than 50 for all pliers. When the fastener receives a case hardening treatment in addition to the through hardening, a maximum hardness of 60 on the HRC scale or equivalent will be permitted.

4.7 Jaws

4.7.1 Jaw Openings. The ends of the jaws shall open to the respective minimum distance as specified for the individual type and classes of pliers, through which distance the tool shall operate in a smooth and uniform manner. It should be possible to open the handles through the minimum jaw openings specified in the tables by the application of a force to the handles of the magnitude specified and in the manner specified in para. 5.5. Beyond the minimum opening distance specified, the jaws may open at increased loads until the positive stop of the tool is engaged.

4.7.2 Cutting Edge Hardness. Pliers jaws adjacent to the cutting edge (within $^1/_{16}$ in. (1.6 mm) of the cutting edge shoulder) shall show a hardness value of not less than 55 and not more than 65 on the HRC scale. The balance of the jaw area shall show a hardness value of not less than 35 and not more than 65 on the HRC scale.

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

4.8 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.

4.9 Finishes

4.9.1 Appearance. Pliers shall have polished heads. All remaining surfaces not polished shall be essentially free from pits, nodules, burrs, cracks, and other defects which may adversely affect the appearance or performance of the tool. Polished surfaces shall have a minimum surface roughness of 63 microinches (1.6 micrometers) with a supplementary rust preventive treatment. (Ref. B46.1)

4.9.2 Protective/Decorative Coatings. Coatings shall be adherent, smooth, continuous, and free from pits, blisters, nodules, and any other defects which would interfere with their protective value and serviceability.

4.10 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.

4.11 Workmanship

The requirements within this Standard are intended to describe the best commercial quality pliers avail-

able. The pliers shall conform to the quality of the end product specified by the requirements of this Standard.

5 TEST PROCEDURES

Many of the tests required herein are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting these tests.

5.1 Cutting Test for Pliers

5.1.1 Steel Wire Cutting Test. The wire for the steel wire cutting test shall be .060–.064 in. (1.52–1.63 mm) uncoated, single-strand steel wire having a minimum tensile strength of 180,000 psi (1241 MPa). On wire cutting tests, the equipment and manner of applying loads similar to those specified in para. 5.3 shall be used. The wire being cut may be loosely supported at the jaws by the operator in the manner ordinarily employed for cutting wire with pliers (see para. 4.4.2). Three cuts shall be made at the joint end of the cutting edges with a maximum 300 in. lb. load. The pliers should completely sever the wire. Following the completion of the wire cutting test, the pliers shall cut bond paper.

5.1.2 Paper Cutting Test. Paper for cutting tests shall be chemical wood, white bond paper .003 (.08 mm) thick. The bond paper shall be in strip form, the width of the strip measuring 1/16 in. (1.6 mm) less than the length of the cutting edges. The strip of paper shall be centered between the ends of the cutting edges when the cut is made. The paper cutting tests are intended to determine proper alignment of the cutting edges. Paper cutting tests which follow wire cutting tests are intended to determine whether deformation or failure has occurred due to crushing of the cutting edges incident to cutting wire. The cutting edges of the pliers under test shall completely and cleaning cut the bond paper. The force required to cut the paper shall not exceed 40 lbs. (18.1 kg) applied at the point of maximum handle curvature. (Normal gripping position.)

5.2 Hardness Test

The hardness range specified in paras. 4.5.1, 4.6, and 4.7.2 shall be tested in accordance with ASTM E 18. When grinding is necessary to prepare the test surface, the amount removed must not exceed 0.007 in. (0.18 mm) on the surface contacted by the indenter. Hardness determinations for handles shall be taken approximately midway between the fastener and the end of the handles. The hardness of fastener shall be determined on the assembled tool.

5.3 Handle Load Test

The sample pliers under test shall be supported in a manner which enables a load to be applied directly on the handles perpendicular to the centerline as shown in Fig. 1. Loads shall be applied through a line contact on both handles at the point of maximum handle curvature such that both handles directly oppose one another. The jaws shall have a piece of flat stock 1/8″ (3.12 mm) thick, min. R/C 40, inserted between them a maximum distance of 1/8″ (3.12 mm) from the tip of the nose. A small flat should be ground at the extreme ends of each handle on which center punch marks are indented. Handle deflection measurements should be taken between these center punch marks. An initial load of 5 lbs. (2.2 kg) shall be applied to the handles after which, with the load still applied, a deflection measurement is taken. The major load is then applied. The load is then relaxed to the initial load and a second deflection measurement is taken. The pliers permanent set is calculated by substracting the second deflection from the initial deflection measurement. The actual pounds force applied to the handles shall be calculated by dividing the major load by the distance from the centerpoint of the fastener to the point of maximum curvature of the handles measured on the centerline of the pliers.

5.4 Comfort Grip Solvent Test

Pliers handles with comfort grips intact shall resist the following testing without damage. Handles are to be fully immersed in the test liquids specified (use new handle for each liquid) for at least 15 min. at room temperature, remove and let stand for at least 24 hr: DOT 3 brake fluid, gasoline, ethylene glycol, ethyl alcohol. There shall be no permanent swelling, surface attack (except brand or paint removal), or degradation of the applicable performance requirements.

5.5 Jaw Opening Test

One handle of the sample pliers under test shall be clamped in a vise with the pliers in a horizontal position, and a force shall be applied to the unclamped handle in such a direction as to tend to open the jaws of the pliers. The force shall be applied in the plane

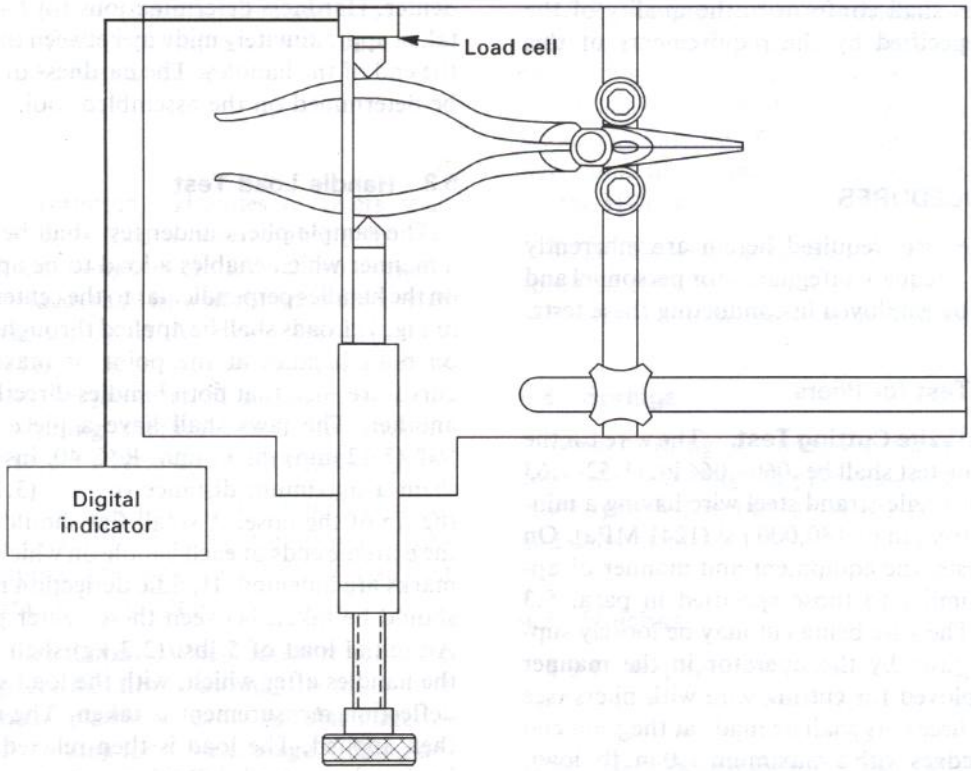

FIG. 1 TYPICAL APPARATUS FOR APPLYING TEST LOAD TO HANDLES OF PLIERS

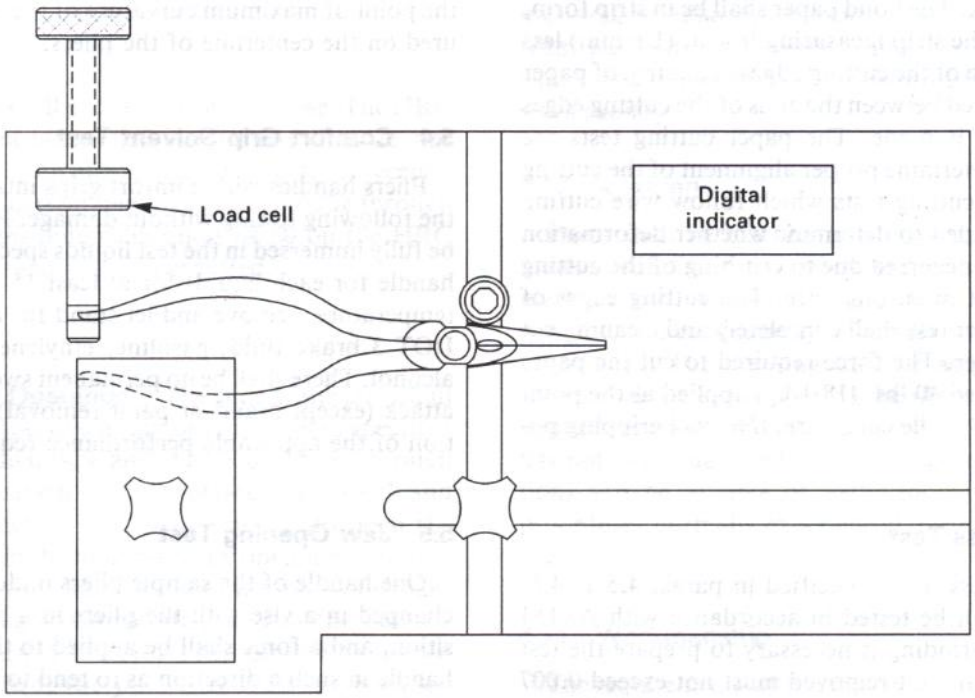

FIG. 2 TYPICAL APPARATUS FOR APPLYING TEST LOAD TO JAWS OF PLIERS

TABLE 1 JAW OPENING TEST

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

of the handles by means of a suitable load-indicating device at the extreme end of the handle, see Fig. 2. 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 1.

6 DESIGNATIONS

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

Type
Class
Nominal Size
Style
Handles: if comfort grip handles are required, it should be noted on the procurement document
Springs: if springs are required, it should be noted on the procurement document
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.

7 TYPE, CLASS, STYLE PROVISIONS

7.1 Type I — Flat Nose/Duck Bill

The jaws of Type I pliers shall taper as specified in the tables for each class. The jaws shall contact each other at the outermost end when the pliers are in a closed position.

7.1.1 Class 1 — Narrow Nose. Class 1 pliers shall taper uniformly in thickness and in width from near the joint to the outermost end. Unless otherwise specified, one-fourth to one-third of the gripping surfaces of the jaws from the outermost end shall be scored. The pliers shall conform to the requirements shown in Table 2 for the size specified (see Section 6) and shall be similar to those shown in Fig. 3.

7.1.2 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. Unless otherwise specified (see Section 6), the gripping jaws shall be scored.

One-fourth to one-third of the gripping surfaces of the jaws from the outermost end shall be scored. The pliers shall conform to the requirements shown in Table 3 for the size specified (see Section 6) and shall be similar to those shown in Fig. 4.

7.1.3 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. Unless otherwise specified (see Section 6), one-fourth to one-third of the gripping surfaces of the jaws from the outermost end shall be scored.

(*a*) Style A pliers (without cutter) shall conform to the requirements shown in Table 4 and shall be similar to those shown in Fig. 5.

(*b*) Style B pliers (with cutter) shall be identical to Style A pliers, except that the jaws have cutting edges on one side near the joint end (see para. 5.1). The cutting edges shall extend one-fifth [$\pm$ 1/8 in. (3.2 mm)] the length of the jaws. There shall be a recess in the jaws behind the side cutters to provide satisfactory side clearance.

7.1.4 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. Unless otherwise specified (see Section 6), the gripping surfaces of the jaws shall be scored. The length of the scoring shall be at least 1/2 in. (12.7 mm) back from the outermost end. The pliers shall conform to the requirements shown in Table 5 and shall be similar to those shown in Fig. 6.

7.2 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 1/32 in. (0.8 mm). The pliers shall conform to the requirements shown in Table 6 for the size specified (see Section 6) and shall be similar to those shown in Fig. 7.

7.3 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. One-fourth to one-third of the gripping surfaces of the jaws from the outermost end shall be scored. The jaws shall contact each other at the outermost end when the pliers are in the closed position. If the nose design is elliptical, use dimensions G and H only. If the nose design is circular, use dimension G only.

7.3.1 Class 1 — Long Nose

(*a*) The jaws of Style A pliers (with cutter) shall be provided with cutting edges on one side adjacent to the joint and extending one-fourth [± 1/8 in. (3.2 mm)] the length of the jaws. With the pliers in the closed position, the cutting edges shall contact each other throughout the entire length. There shall be a recess behind the cutter to provide satisfactory clearance for the cutting edges. The pliers shall conform to the requirements shown in Table 7 for the size specified (see Section 6) and shall be similar to those shown in Fig. 8.

(*b*) Style B pliers (without cutter) shall conform to the requirements shown in Table 8 for the size specified (see Section 6) and shall be similar to those shown in Fig. 9.

7.3.2 Class 2 — Bent Nose. The jaws of Class 2 pliers shall be of half-round cross section so that the gripping surfaces are planar. Unless otherwise specified (see Section 6), one-fourth to one-third of the gripping surface of the jaws from the outermost end shall be scored. The jaws shall contact each other at the outermost end when the pliers are in a closed position. 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 9 for the size specified (see Section 6) and shall be similar to those shown in Fig. 10.

7.3.3 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. One-fourth to one-third of the gripping surfaces of the jaws from the outermost end shall be scored. The jaws shall contact each other at the outermost end when the pliers are in the closed position.

(*a*) The jaws of Style A pliers (with cutter) shall be provided with cutting edges on one side adjacent to the joint and extending one-fourth [± 1/8 in. (3.2 mm)] the length of the jaws. There shall be a recess behind the cutter to provide satisfactory clearance for the cutting edges. The pliers shall conform to the requirements shown in Table 10 for the size specified (see Section 6) and shall be similar to those shown in Fig. 11.

(*b*) Style B pliers (without cutter) shall conform to the requirements shown in Table 11 for the size specified (see Section 6) and shall be similar to those shown in Fig. 12, except that the 8 in. (203 mm) size may be similar to those shown in Fig. 13.

7.3.4 Class 4 — Needle Nose

(*a*) 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 12 and shall be similar to those shown in Fig. 14.

(*b*) Style B pliers (with cutter) shall conform to the requirements of para. 7.3.4(a) except that the jaws shall be provided with cutting edges on one side adjacent to the joint and extending one-fourth [± 1/8 in. (3.2 mm)] the length of the jaws (see para. 4.2). There shall be a recess behind the cutter to provide satisfactory clearance for the cutting edges.

TABLE 2 TYPE I, CLASS 1

Nominal Size	A	B	C	D	E	F	G	Jaw Opening, Min.	Handle Load, Min. in.-lb
Dimensions, in.									
4½	4 13/16 ± 1/8	1 1/8 ± 1/16	1/4 ± 1/32	7/16 ± 1/64	1 7/8 ± 1/4	3/64 ± 1/64	5/32 ± 1/32	5/8	100
5	5½ ± 3/16	1¾ ± 1/8	1/4 ± 1/32	½ ± 1/32	1 7/8 ± 1/4	3/64 ± 1/64	1/8 ± 1/32	5/8	200
7	7½ ± 1/4	2½ ± 1/4	3/8 ± 1/16	9/16 ± 1/8	1 7/8 ± 1/4	3/64 ± 1/32	1/4 ± 1/8	1	300
Dimensions, mm									N·m
114	122 ±3	29 ±2	6.4 ±0.8	11.1 ±0.4	48 ±6	1.2 ±0.4	4 ±0.8	15.9	11.3
127	140 ±5	44 ±3	6.4 ±0.8	7.9 ±0.8	48 ±6	1.2 ±0.4	3.2 ±0.8	15.9	22.6
178	190 ±6	64 ±6	9.5 ±1.6	14.3 ±3.2	48 ±6	1.2 ±0.8	6.4 ±3.2	25	34

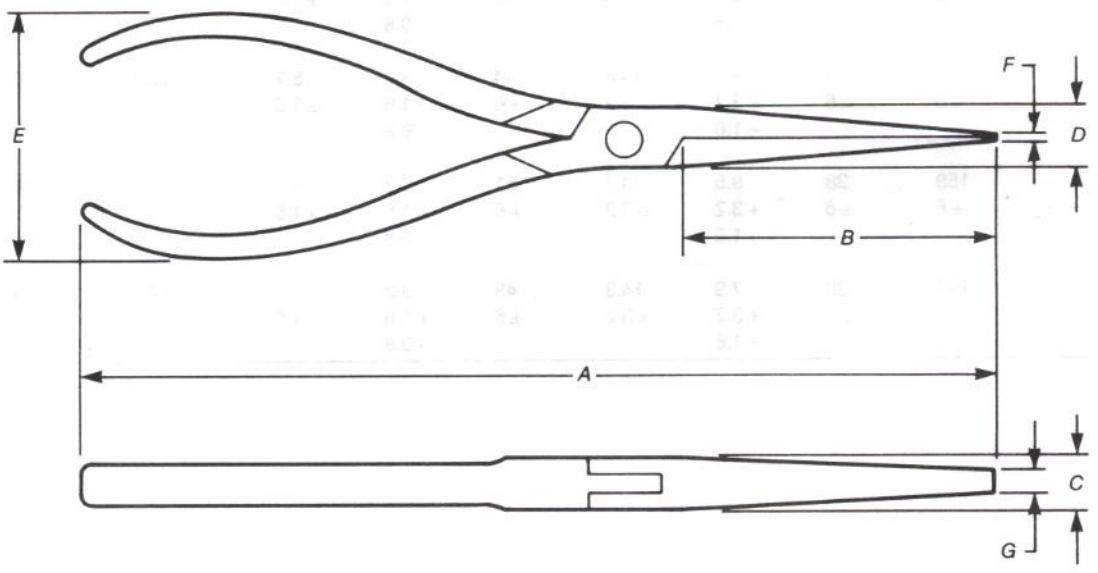

FIG. 3 TYPE I, CLASS 1

TABLE 3 TYPE I, CLASS 2

Nominal Size	A	B	C	D	E	F	G	Jaw Opening, Min.	Handle Load, Min.
									in.-lb
Dimensions, in.									
4	4 5/8 ± 1/4	1 ± 1/4	1/4 + 1/8 − 1/16	7/16 ± 1/8	1 15/16 ± 1/4	1/16 + 1/16 − 1/32	1/8 ± 1/16	3/8	100
5	5 1/4 ± 1/4	1 3/8 ± 1/4	3/8 + 1/8 − 1/16	9/16 ± 1/8	1 3/4 ± 1/4	1/8 + 1/16 − 1/32	11/32 ± 1/16	1/2	200
6	6 1/4 ± 1/4	1 1/2 ± 1/4	3/8 + 1/8 − 1/16	9/16 ± 1/8	2 ± 1/4	1/8 + 1/16 − 1/32	11/32 ± 1/16	5/8	300
7 1/2	7 3/4 ± 1/4	1 1/2 ± 1/4	5/16 + 1/8 − 1/16	9/16 ± 1/8	1 7/8 ± 1/4	1/8 + 1/16 − 1/32	5/16 ± 1/16	11/16	300
Dimensions, mm									N·m
102	117 ±6	25 ±6	6.4 +3.2 −1.6	11 ±3	49 ±6	1.6 +1.6 −0.8	3.2 ±1.6	9.5	11.3
127	133 ±6	35 ±6	9.5 +3.2 −1.6	14.3 ±3.2	44 ±6	3.2 +1.6 −0.8	8.7 ±1.6	12.7	22.6
152	159 ±6	38 ±6	9.5 +3.2 −1.6	14.3 ±3.2	51 ±6	3.2 +1.6 −0.8	8.7 ±1.6	15.9	34
190	197 ±6	38 ±6	7.9 +3.2 −1.6	14.3 ±3.2	48 ±6	3.2 +1.6 −0.8	7.9 ±1.6	17	34

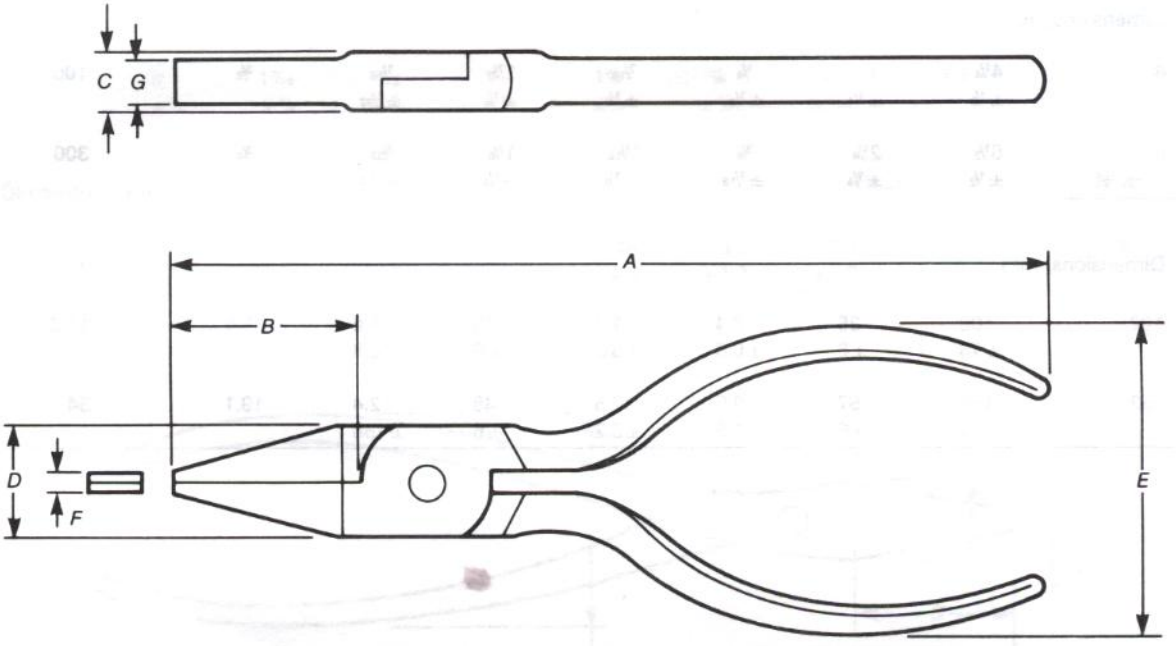

FIG. 4 TYPE I, CLASS 2

TABLE 4 TYPE I, CLASS 3, STYLES A AND B

Nominal Size	A	B	C	D	E	F	Jaw Opening, Min.	Handle Load, Min.
								in.-lb
Dimensions, in.								
4	4 1/4 ± 1/2	1 ± 1/4	1/4 ± 1/32	7/16 ± 1/8	1 7/8 ± 1/4	1/16 ± 1/32	3/8	100
6	6 1/2 ± 1/2	2 1/4 ± 1/4	3/8 ± 1/16	1 1/16 ± 1/8	1 7/8 ± 1/4	3/32 ± 1/32	3/4	300
Dimensions, mm								N·m
102	108 ±13	25 ±6	6.4 ±0.8	11.1 ±3.2	48 ±6	1.6 ±0.8	9.5	11.3
152	165 ±13	57 ±6	9.5 ±1.6	17.5 ±3.2	48 ±6	2.4 ±188	19.1	34

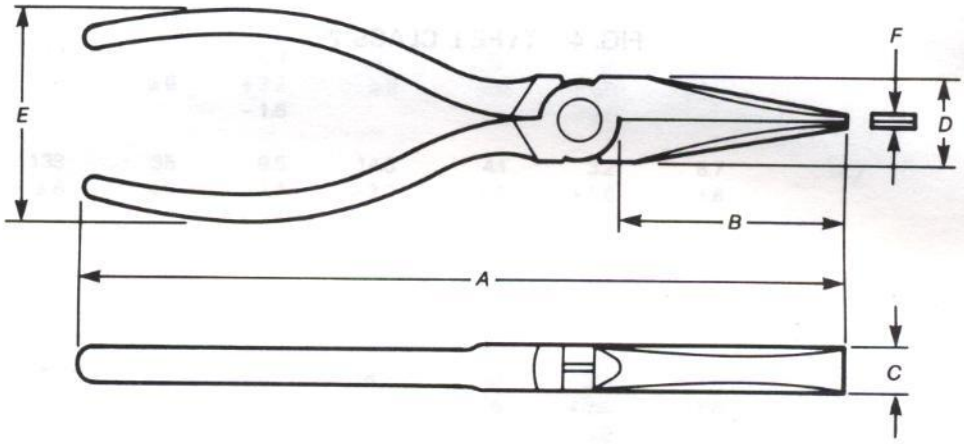

FIG. 5 TYPE I, CLASS 3, STYLES A AND B

TABLE 5 TYPE I, CLASS 4

Nominal Size	A	B	C	D	E	F	G	Jaw Opening, Min.	Handle Load, Min. in.-lb
Dimensions, in.									
8	8 ± 1/2	1 7/16 ± 1/4	7/16 ± 1/8	9/16 ± 1/8	1 7/8 ± 1/4	1/8 ± 3/64	5/16 ± 1/16	1 1/2	300
Dimensions, mm									N·m
203	203 ±13	37 ±6	11.1 ±3.2	14.3 ±3.2	48 ±6	3.2 ±1.2	7.9 ±1.6	38	34

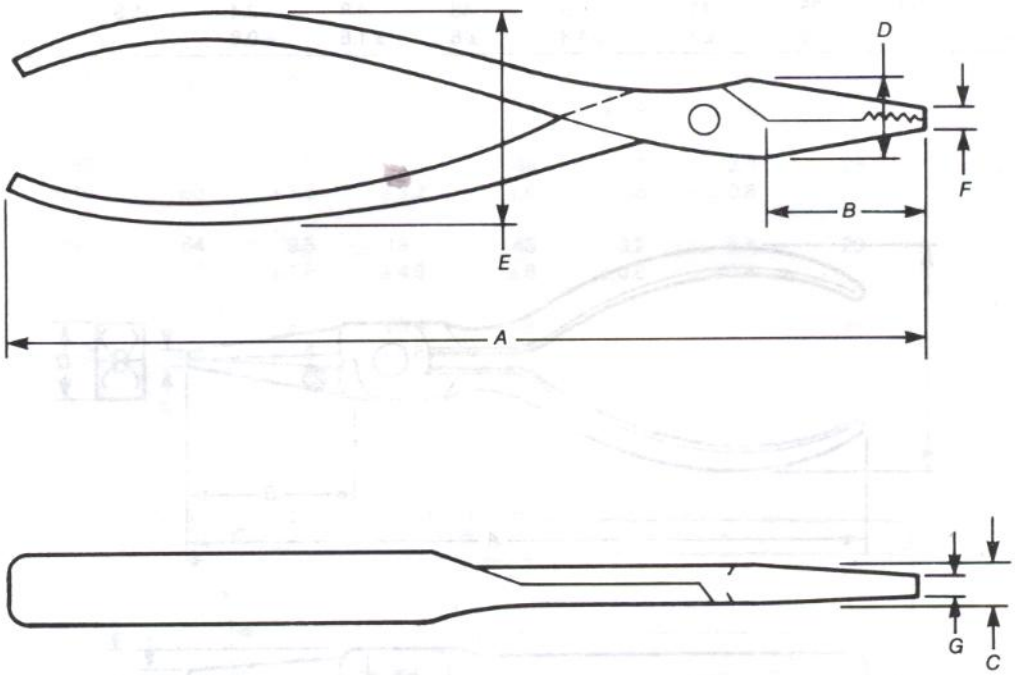

FIG. 6 TYPE I, CLASS 4

TABLE 6 TYPE II

Nominal Size	A	B	C	D	E	F	G	Jaw Opening, Min.	Handle Load, Min.
Dimensions, in.									in.-lb
4½	4½ ± ¼	¾ ± ⅛	¼ ± 1/16	7/16 ± 1/32	1⅞ ± ⅛	⅛ ± 1/32	1/16 ± 1/64	⅜	100
6	6¼ ± ½	1⅜ ± ¼	7/16 ± 1/16	⅝ ± 3/16	1⅞ ± ¼	3/16 ± 1/16	3/32 ± 1/32	⅝	300
Dimensions, mm									N·m
114	114 ± 6	19 ± 3.2	6.4 ± 1.6	11.1 ± 0.8	48 ± 3	3.2 ± 0.8	1.6 ± 0.4	9.5	11.3
152	159 ± 13	35 ± 6	11.1 ± 1.6	15.9 ± 4.8	48 ± 6	4.8 ± 1.6	2.4 ± 0.8	15.9	34

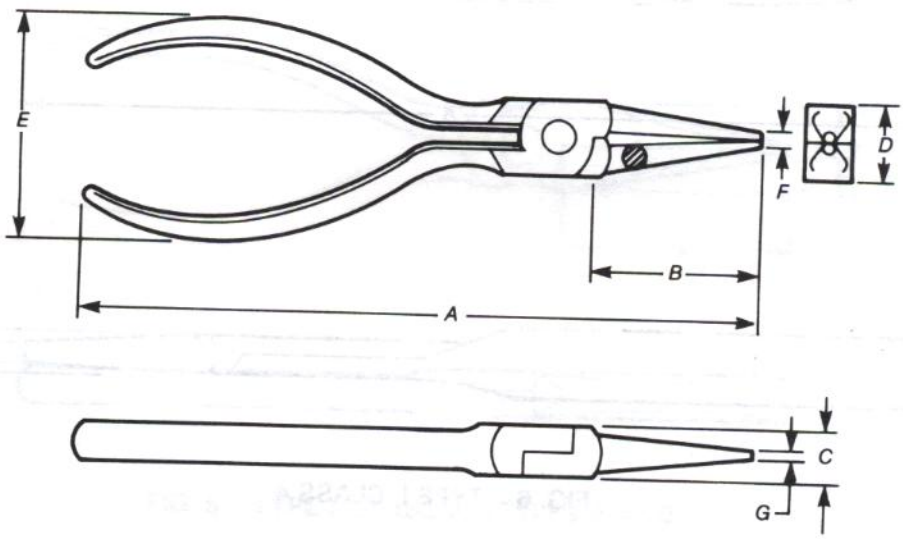

FIG. 7 TYPE II

TABLE 7 TYPE III, CLASS 1, STYLE A

Nominal Size	A	B	C	D	E	F	G	Jaw Opening, Min.	Handle Load, Min. in.-lb
Dimensions, in.									
5	5 9/16 ± 3/16	1 9/16 ± 1/8	3/8 ± 1/8	19/32 ± 1/8	1 7/8 ± 1/4	3/32 ± 1/32	3/32 ± 1/32	3/4	200
6	6 3/8 ± 3/8	2 ± 1/4	3/8 ± 1/16	11/16 ± 1/8	1 7/8 ± 1/4	1/8 ± 1/32	3/32 ± 1/32	1	300
7	7 1/2 ± 1/2	2 1/2 ± 5/16	3/8 ± 1/16	3/4 ± 3/16	1 7/8 ± 1/4	1/8 ± 1/32	3/32 ± 1/32	1 1/8	300
8	8 5/16 ± 1/2	2 5/16 ± 5/16	1/2 ± 1/16	1 ± 3/16	1 7/8 ± 1/4	1/8 ± 1/32	1/8 ± 1/32	1 1/8	300
Dimensions, mm									N·m
127	141 ± 5	40 ± 3	9.5 ± 3.2	15.1 ± 3.2	48 ± 6	2.4 ± 0.8	2.4 ± 0.8	19	22.6
152	162 ± 10	51 ± 6	9.5 ± 1.6	17.5 ± 3.2	48 ± 6	3.2 ± 0.8	2.4 ± 0.8	25	34
178	191 ± 13	64 ± 8	9.5 ± 1.6	19 ± 4.8	48 ± 6	3.2 ± 0.8	2.4 ± 0.8	29	34
203	211 ± 13	59 ± 8	12.7 ± 1.6	25.4 ± 4.8	48 ± 6	3.2 ± 0.8	3.2 ± 0.8	29	34

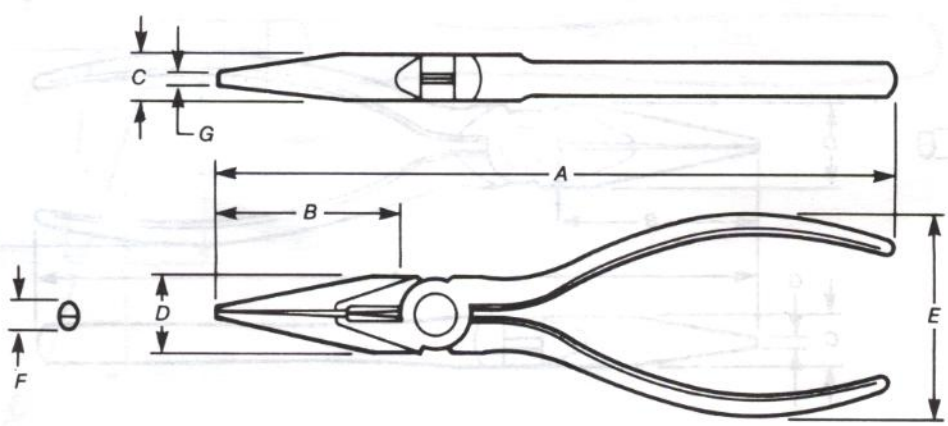

FIG. 8 TYPE III, CLASS 1, STYLE A

TABLE 8 TYPE III, CLASS 1, STYLE B

Nominal Size	A	B	C	D	E	F	G	Jaw Opening, Min.	Handle Load, Min.
Dimensions, in.									in.-lb
4½	4 13/16 ± 1/8	1 1/8 ± 1/16	1/4 ± 1/32	7/16 ± 1/32	1 7/8 ± 1/8	5/64 ± 1/64	1/16 ± 1/64	3/4	100
5	5 9/16 ± 3/16	1 9/16 ± 1/8	3/8 ± 1/8	19/32 ± 1/8	1 7/8 ± 1/4	1/8 ± 1/32	1/8 ± 1/32	3/4	200
6	6 3/8 ± 3/8	2 ± 1/4	3/8 ± 1/16	11/16 ± 1/8	1 7/8 ± 1/4	1/8 ± 1/32	3/32 ± 1/32	1	300
7	7 1/2 ± 1/2	2 1/2 ± 5/16	3/8 ± 1/16	3/4 ± 3/16	1 7/8 ± 1/4	1/8 ± 1/16	3/32 ± 1/32	1 1/8	300
Dimensions, mm									N·m
114	122 ± 3	29 ± 1.6	6.4 ± 0.8	11.1 ± 0.8	48 ± 3	2 ± 0.4	1.6 ± 0.4	19	11.3
127	141 ± 5	40 ± 3	9.5 ± 3.2	15.1 ± 3.2	48 ± 6	3.2 ± 0.8	3.2 ± 0.8	19	22.6
152	162 ± 10	51 ± 6	9.5 ± 1.6	17.5 ± 3.2	48 ± 6	3.2 ± 0.8	2.4 ± 0.8	25	34
178	191 ± 13	64 ± 8	9.5 ± 1.6	19 ± 4.8	48 ± 6	3.2 ± 1.6	2.4 ± 0.8	28	34

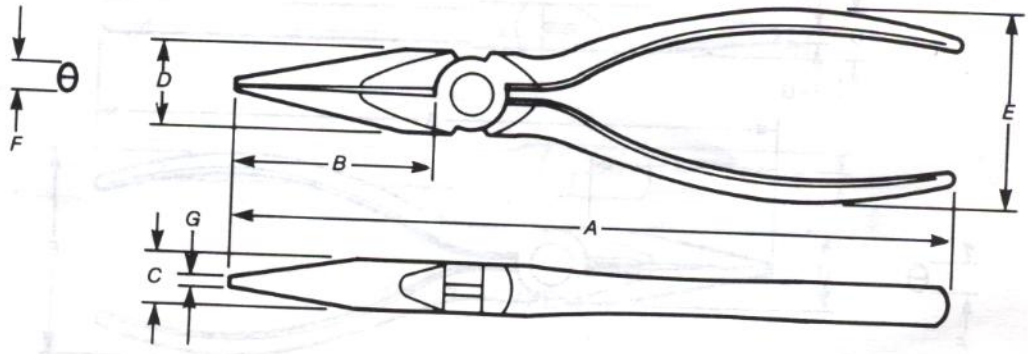

FIG. 9 TYPE III, CLASS 1, STYLE B

TABLE 9 TYPE III, CLASS 2

Nominal Size	A	B	C	D	E	F	G	H	Jaw Opening, Min.	Handle Load, Min. in.-lb
Dimensions, in.										
4½	4½ ± ½	¾ ± ¼	¼ ± 1/16	⅜ ± ⅛	1⅞ ± ⅛	⅛ ± 1/32	3/32 ± 1/32	½ ± ⅛	½	100
6	6 ± ½	1½ ± ¼	⅜ ± 1/16	11/16 ± ⅛	1⅞ ± ¼	⅛ ± 1/32	3/32 ± 1/32	1¼ ± ¼	½	300
Dimensions, mm										N·m
114	114 ± 13	19 ± 6.4	6.4 ± 1.6	9.5 ± 6.4	48 ± 3	3.2 ± 0.8	2.4 ± 0.8	12.7 ± 3.2	12.7	11.3
152	152 ± 13	38 ± 6	9.5 ± 1.6	17.5 ± 3.2	48 ± 6	3.2 ± 0.8	2.4 ± 0.8	32 ± 6	12.7	34

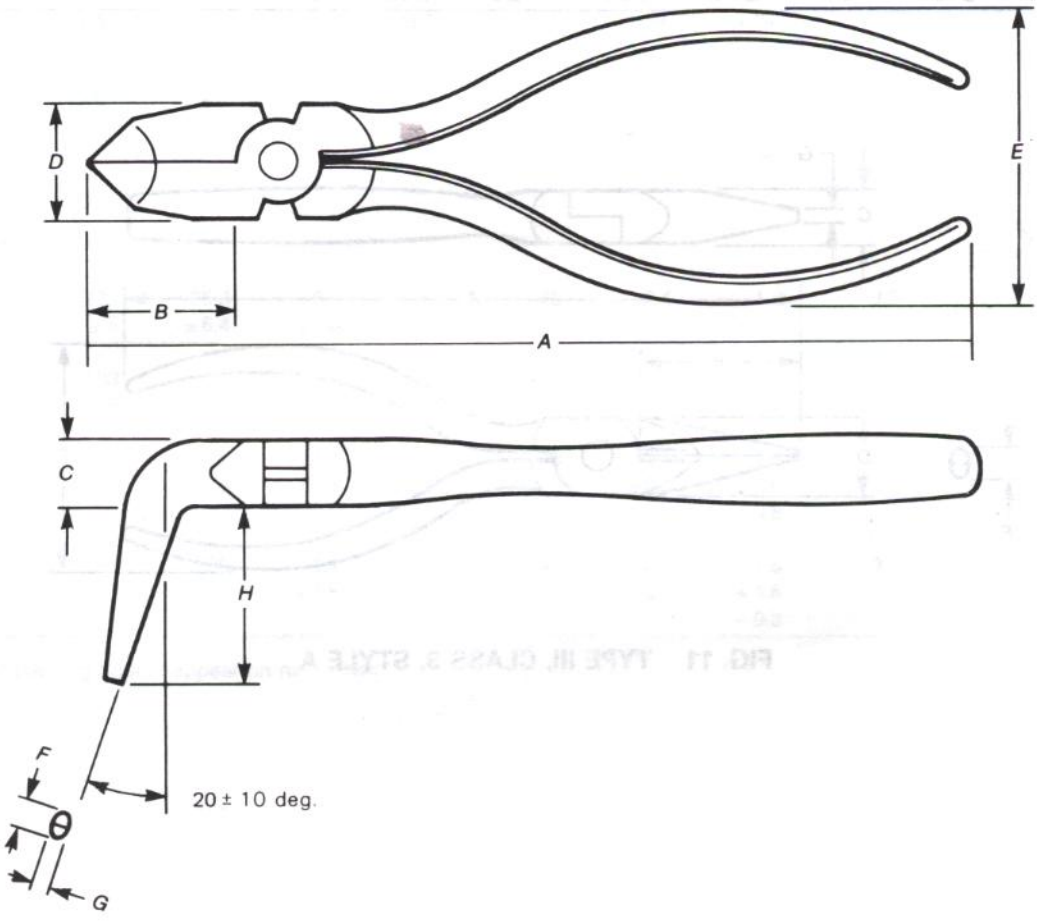

FIG. 10 TYPE III, CLASS 2

TABLE 10 TYPE III, CLASS 3, STYLE A

Nominal Size	A	B	C	D	E	F	G	Jaw Opening, Min.	Handle Load, Min.
Dimensions, in.									in.-lb
5	4 7/8 ± 1/4	1 1/8 ± 1/4	1/4 ± 1/16	1/2 ± 1/8	1 7/8 ± 1/8	3/32 ± 1/32	1/16 ± 1/32	3/8	200
6	6 3/8 ± 3/8	1 1/2 ± 1/4	7/16 ± 1/16	5/8 ± 1/8	1 7/8 ± 1/4	3/32 ± 1/32	1/16 ± 1/32	5/8	300
Dimensions, mm									N·m
127	124 ±6	29 ±6	6.4 ±1.6	12.7 ±3.2	48 ±3	2.4 ±0.8	1.6 ±0.8	9.5	22.6
152	162 ±10	38 ±6	11.1 ±1.6	15.9 ±3.2	48 ±6	2.4 ±0.8	1.6 ±0.8	15.9	34

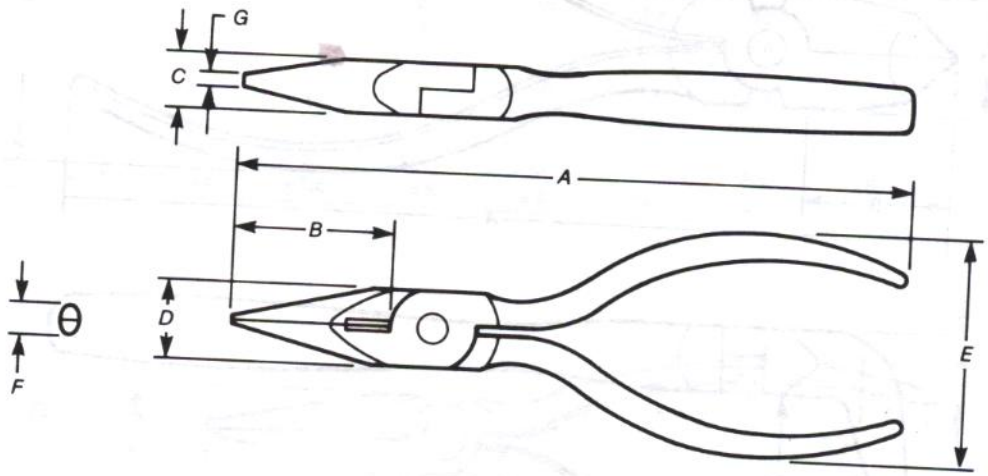

FIG. 11 TYPE III, CLASS 3, STYLE A

TABLE 11 TYPE III, CLASS 3, STYLE B

Nominal Size	A	B	C	D	E	F	G	Jaw Opening, Min.	Handle Load, Min. in.-lb
Dimensions, in.									
4½	4¾ ± ¼	1 ± ¼	¼ ± 1/16	⅜ ± ⅛	1⅞ ± ⅛	3/32 ± 1/32	1/16 ± 1/32	⅜	100
5	5¼ ± 3/16	1⅛ ± ⅛	5/16 ± 1/32	½ ± 1/32	1⅞ ± ¼	1/16 ± 1/64	1/16 ± 1/64	⅝	200
6	6⅜ ± ⅜	1½ ± ¼	7/16 ± 1/16	⅝ ± ⅛	1⅞ ± ¼	3/32 ± 1/32	1/16 + 1/16 − 1/32	⅝	300
8	7¾ ± ¼	1 3/16 ± ¼	7/16 ± 1/16	9/16 ± ⅛	1⅞ ± ¼	3/32 ± 1/32	1/16 + 1/16 − 1/32	¾	300
Dimensions, mm									N·m
114	121 ±6	25.4 ±6.4	6.4 ±1.6	9.5 ±3.2	48 ±3	2.4 ±0.8	1.6 ±0.8	9.5	11.3
127	133 ±5	29 ±3	7.9 ±0.8	12.7 ±0.8	48 ±6	1.6 ±0.4	1.6 ±0.4	15.9	22.6
152	162 ±10	38 ±6	11.1 ±1.6	15.9 ±3.2	48 ±6	2.4 ±0.8	1.6 +1.6 −0.8	15.9	34
203	197 ±6	30 ±6	11.1 ±1.6	14.3 ±3.2	48 ±6	2.4 ±0.8	1.6 +1.6 −0.8	19	34

Note: Accompanying figures appear on next page.

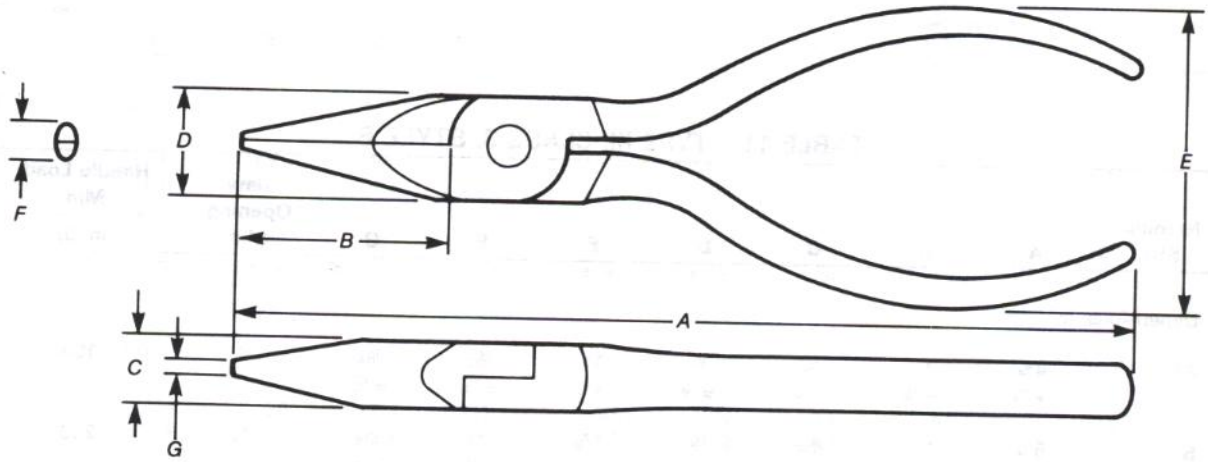

FIG. 12 TYPE III, CLASS 3, STYLE B

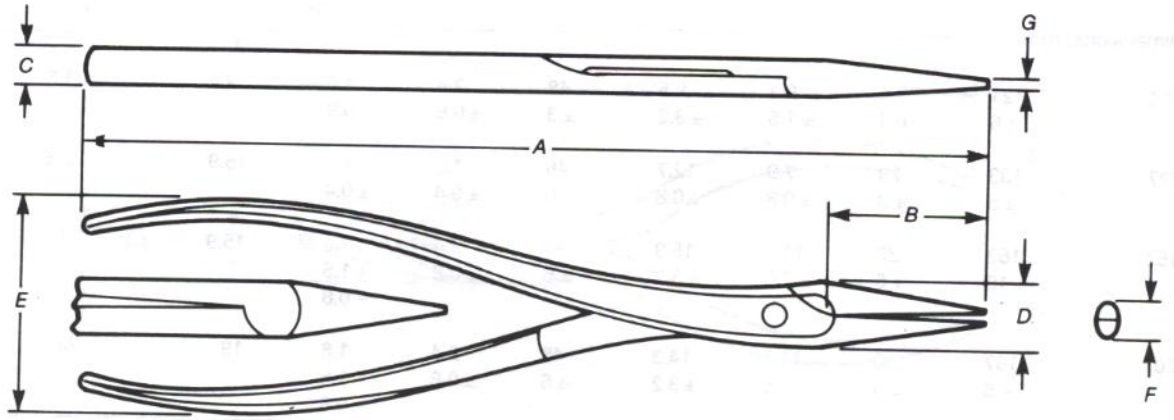

FIG. 13 TYPE III, CLASS 3, STYLE B (8 in. Size, Optional Design)

TABLE 12 TYPE III, CLASS 4, STYLES A AND B

Nominal Size	A	B	C	D	E	F	G	Jaw Opening, Min.	Handle Load, Min.
									in.-lb
Dimensions, in.									
5	5 13/32 ± 3/16	1 3/4 ± 1/8	5/16 ± 1/32	1/2 ± 1/32	1 3/4 ± 1/4	1/16 ± 1/64	1/16 ± 1/64	1	200
6 1/2	6 1/2 ± 1/2	2 3/8 ± 5/16	11/32 ± 1/16	11/16 + 3/16 − 1/8	1 3/4 + 1/2 − 1/4	1/8 ± 1/16	5/64 ± 1/16	1 1/2	300
Dimensions, mm									N·m
127	137 ± 5	44 ± 3	7.9 ± 0.8	12.7 ± 0.8	44 ± 6	1.6 ± 0.4	1.6 ± 0.4	25.4	22.6
152	162 ± 13	60 ± 8	8.7 ± 1.6	17.5 + 4.8 − 3.2	44 + 13 − 6	3.2 ± 1.6	2 ± 1.6	38	34

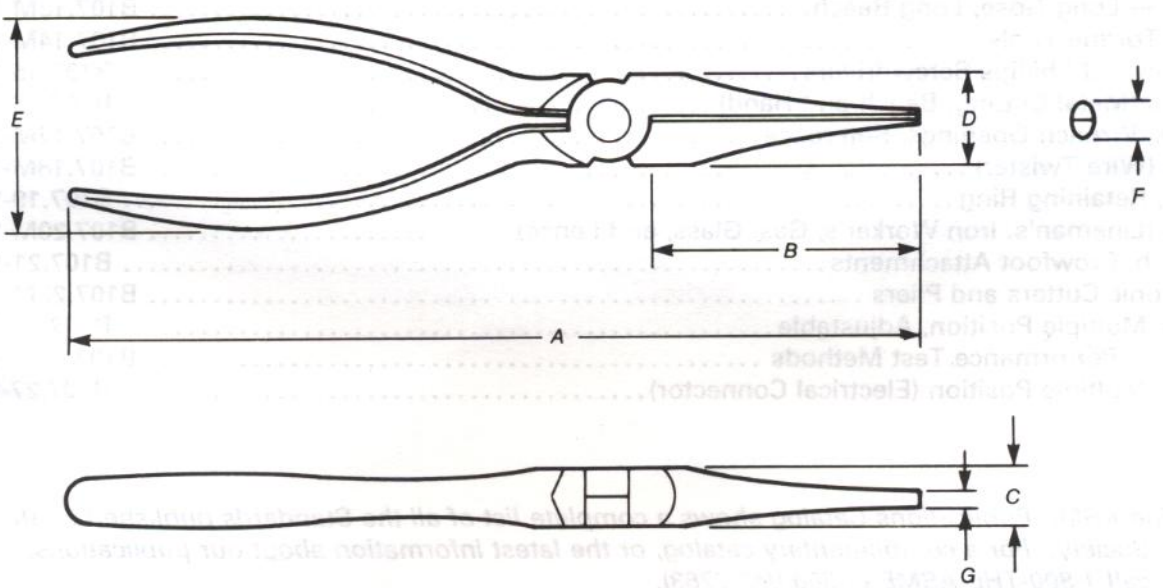

FIG. 14 TYPE III, CLASS 4, STYLES A AND B

Date of Issuance: April 30, 1996

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FOREWORD

(This Foreword is not part of ASME B107.13M-1996.)

The American National Standards Committee B107, Socket Wrenches and Drives, under sponsorship of the American Society of Mechanical Engineers, held its organizational meeting on June 28, 1967. Subsequently, the Committee was reorganized as an ASME Standards Committee and its title was changed to Hand Tools and Accessories.

This Standard on Pliers — Long Nose, Long Reach was approved as an American National Standard on February 7, 1996.

AMERICAN NATIONAL STANDARDS FOR HAND TOOLS

Socket Wrenches, Hand (Inch Series) B107.1-1993
Socket Wrenches, Extensions, Adaptors, and Universal Joints, Power Drive (Impact) (Inch Series) B107.2-1995
Socket Wrenches, Power Drive (Non-Impact) (Inch Series) ..... B107.3-1978(R1991)
Driving and Spindle Ends for Portable Hand, Impact, Air, and Electric Tools (Percussion Tools Excluded) B107.4M-1995
Socket Wrenches, Hand (Metric Series) B107.5M-1994
Wrenches, Box, Angled, Open End, Combination, Flare Nut, and Tappet (Inch Series) B107.6-1994
Adjustable Wrenches B107.8M-1991
Wrenches, Box, Angled, Open End, Combination, Flare Nut, and Tappet (Metric Series) B107.9M-1994
Handles and Attachments for Hand Socket Wrenches — Inch and Metric Series B107.10M-1996
Pliers, Diagonal Cutting, and Nippers, End Cutting B107.11M-1993
Nut Drivers (Spin Type, Screwdriver Grip) B107.12-1991
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