

April 25, 1963

 SUPERSEDING
 Fed. Spec. GGG-K-471b
 April 18, 1956

FEDERAL SPECIFICATION

KNIFE, DRAW

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers draw knives used by carpenters and woodworkers in shaping and trimming wood.

1.1.1 *Federal specification coverage.* Federal specifications do not include all types and classes of draw knives but are intended to cover only those types and classes generally used by the Federal Government.

1.2 Classification.

1.2.1 *Grade and type.* Draw knives covered by this specification shall be of one grade and of the following types, as specified (see 6.1):

Type I.—Fixed handles.

Type II.—Folding handles.

2. APPLICABLE SPECIFICATIONS AND STANDARDS

2.1 Specifications and standards. The following specifications and standards, of the issues in effect on date of invitation for bids, form a part of this specification:

Federal Standards:

Fed. Std. No. 102—Preservation, Packaging, and Packing Levels.

Fed. Std. No. 123—Marking for Domestic Shipment (Civilian Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications, Standards, and Handbooks and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D. C., Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, and Auburn, Wash.

(Federal Government activities may obtain copies of Federal Specifications, Standards and Handbooks and the Index of Federal Specifications, Standards, and Handbooks from established distribution points in their agencies.)

Military Specification:

MIL-H-15424—Hand Tools; Packaging of.

Military Standards:

MIL-STD-105—Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-129—Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

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3. REQUIREMENTS

3.1 Material. The material used in the manufacture of draw knives shall be as hereinafter specified. The material shall be free from any defects and imperfections that may affect their serviceability.

3.2 Design. The draw knives shall consist essentially of a blade and two wooden handles. The knives shall be furnished with either a straight or curved blade, as specified (see 6.1). When tested as specified in 4.3.4, the knives shall not become deformed, misaligned, or damaged, which would in any way affect the serviceability of the end item. The blade cutting edge shall not chip or become dull.

3.2.1 Blade. The blade shall be of either an alloy steel or carbon tool steel and shall be provided with a suitably beveled cutting edge and two shanks or handle arms.

3.2.1.1 Shanks or handle arms. The shanks or handle arms, if an integral part of the blade, shall be of an alloy steel or carbon steel. If welded, or a component of the folding handle, the shanks shall be of good quality steel. The shanks shall be of sufficient length to be peened over the caps or washers at the end of the handles in a manner to provide a smooth rivet head for securing the handles and preventing them from becoming loose when the knives are in use.

3.2.2 Handles. The handles shall be of clear-grained wood such as ash, birch, hard maple, hickory, or other wood of equal or better quality. The handles shall be smoothly finished and shaped to afford a comfortable, adequate handgrip and shall be provided with substantial ferrules to preclude splitting and splintering of the handle.

3.2.2.1 Ferrules and caps. The ferrules and caps shall be of either brass or steel. If made of steel other than corrosion-resisting, they shall be coated in accordance with 3.3.2.

3.3 Finish.

3.3.1 Surface. All metal surfaces shall be free from pits, nodules, burrs, cracks, and other detrimental defects. Surfaces not usually ground or buffed shall have a surface finish conforming to good manufacturing practice.

3.3.1.1 Blade. Surfaces usually ground, buffed, or otherwise finished shall have a surface finish equal to the finish produced by 100-grit or finer abrasive.

3.3.1.2 Handle arms, ferrules, and caps. Surfaces usually ground, buffed, or otherwise finished, and provided with a coating of chromium or nickel plate, shall have a surface roughness equivalent to the finish produced by 180-grit or finer abrasive. Surfaces usually ground, buffed, or otherwise finished, and provided with a coating as specified in 3.3.2, other than chromium and nickel, shall have a surface roughness equivalent to the finish produced by 80-grit or finer abrasive.

3.3.2 Coating. Steel handle arms, ferrules, and caps, other than corrosion-resistant steel, shall have one of the following coatings. The coatings shall be adherent, smooth, continuous, and shall be free from uncoated areas, pits, blisters, nodules, and any other defects which would interfere with their protective value and serviceability.

3.3.2.1 Bright chromium plate. The coating shall be electrodeposited metals consisting of nickel followed by chromium. The minimum thickness shall be 0.0002 inch for nickel and 0.00001 inch for chromium.

3.3.2.2 Bright nickel plate. The coating shall be electrodeposited nickel and shall be not less than 0.0002 inch.

3.3.2.3 Cadmium plate. The coating shall be electrodeposited cadmium not less than 0.0003 inch thick and shall be subjected to a chemical or electro-chemical chromating.

3.3.2.4 Zinc plate. The coating shall be an electrodeposit of zinc not less than 0.0003 inch thick, and shall be subjected to a chemical or electro-chemical chromating.

3.4 Hardness. When tested as specified in 4.3.3, the blade shall show a Rockwell hardness of not less than C52 nor more than C60.

3.5 Identification marking. The draw knives shall be marked in a permanent and legible manner with the manufacturer's name or with a trademark of such known character that the source of manufacture may be readily determined.

3.6 Type I, fixed handle. Type I draw knives shall be of the fixed or rigid handle type.

3.6.1 Blade. The blade shall be provided with two shanks or handle arms. The shanks or handle arms shall be either an integral part of the blade or welded to the blade. If a welded type blade is furnished, the alloy or carbon tool steel portion of the blade shall have a minimum depth of 3/4 inch back from the cutting edge.

3.6.1.1 Shanks. The shanks or handle arms shall be bent at an angle of approximately 90 degrees to the cutting edge of the blade.

3.6.2 Dimensions. Type I knives shall conform to the dimensions shown in table I for

the length specified (see 6.1) and shall be similar to figure 1.

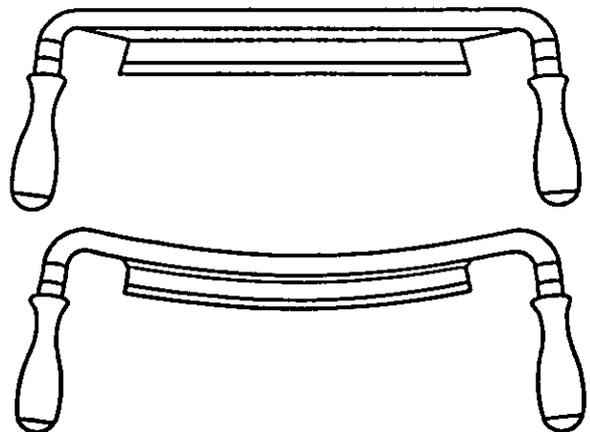


FIGURE 1.—Type I draw knives, fixed handles.

3.7 Type II, folding handles. Type II draw knives shall conform to the requirements of 3.6 through 3.6.2, except that the handles shall be of the folding type. Means shall be provided to hinge the handles near the outer end of the shanks of the blade in order that the handles may fold over in a manner to protect the cutting edge of the blade. The design of the blade and handles shall provide fixed positions for holding the handles rigidly in place when locked in an opened or closed position by either winged or knurled thumb nuts. Type II knives shall conform to the dimension shown in table I for the length specified (see 6.1) and shall be similar to figure 2.

TABLE I.—Type I draw knives, fixed handles, and type II draw knives, folding handles

Length of blade	Full depth of blade from cutting edge to back of blade		Length of handles		Diameter of handles			
					Ferrule ends		Cap ends	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>	<i>Inch</i>	<i>Inches</i>	<i>Inches</i>	<i>Inches</i>
10	1½	1½	4	5	¾	1½	1½	1½
12	1½	1½	4	5	¾	1½	1½	1½
14	2	2½	4	5	¾	1	1½	1½

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3.8 Illustrations. The illustrations shown herein are for the convenience of identification and are not intended to preclude the purchase of draw knives which are otherwise in accordance with the requirements of this specification.

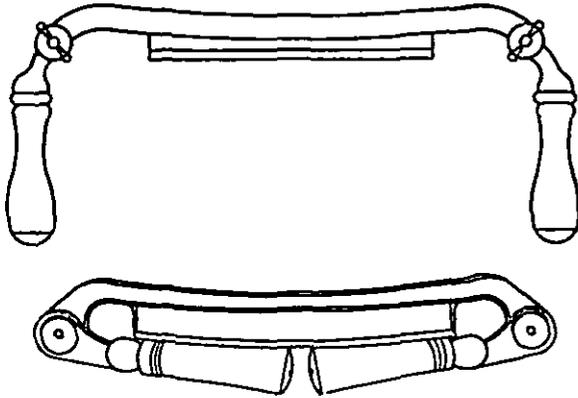


FIGURE 2.—Type II draw knives, folding handles.

3.9 Workmanship. Workmanship shall be of the highest grade throughout and equal in every respect to good commercial practice. The draw knives shall be free from rust, burrs, fins and any imperfections which may impair their serviceability or durability.

4. SAMPLING, INSPECTION, AND TEST PROCEDURE

4.1 Inspection responsibility. The supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. Inspection records of the examination and tests shall be kept complete and available to the Government as specified in the contract or order (see 6.1). The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.2 Sampling for inspection and acceptance. Sampling for inspection and acceptance shall be performed in accordance with provisions set forth in MIL-STD-105, except where otherwise indicated.

4.2.1 Inspection of components and materials. In accordance with 4.1 above, the supplier is responsible for insuring that components and materials used are manufactured, tested and inspected in accordance with the requirements of referenced subsidiary specifications and standards to the extent specified or, if none, in accordance with the specification.

4.2.2 Intermediate inspection.

4.2.2.1 Surface roughness. Prior to plating or assembly, the blade, handle arms, ferrules, and caps shall be inspected for surface roughness as specified in 4.3.1 to determine compliance with the requirements specified in 3.3.1.1 and 3.3.1.2. The sample unit shall be one blade, handle arm, ferrule or cap. The inspection level shall be L8, with an AQL of 6.5 defects, expressed in defects per hundred units.

4.2.2.2 Coating thickness. Prior to assembly, the handle arms, ferrules, and caps (unless fabricated from brass or corrosion-resistant steel) shall be tested for coating thickness as specified in 4.3.2 to determine compliance with the applicable requirements specified in 3.3.2.1 through 3.3.2.4. A lot shall consist of like components of one type draw knife having the same type of coating and that have been coated as a batch or under the same process and control. The sample unit shall be one handle arm, ferrule, or cap. The inspection level shall be L7, with an AQL of 4.0 defects expressed in defects per hundred units.

4.2.2.3 Hardness. The blade shall be tested for hardness as specified in 4.3.3 to determine compliance with the requirements specified in 3.4. The sample unit shall be one blade. The inspection level shall be L6,

with an AQL of 1.5 defects, expressed in defects per hundred units.

4.2.3 End product inspection.

4.2.3.1 Visual examination. The draw knives shall be visually examined for defects as outlined in table II. The sample unit shall be one draw knife. The lot size shall be expressed in units of draw knives of one type for the purpose of determining the sample size in accordance with MIL-STD-105. The inspection level shall be level II with an AQL of 1.5 for major defects and 4.0 for total defects expressed in defects per hundred units.

TABLE II.—Classification of defects

Examine	Defect	Classification	
		Major	Minor
Finish	Not as specified ..	X	
	Missing	X	
	Area of no film or thin film		X
	Blistered, peeled, chipped, scratched, or foreign matter imbedded		X
Design	Indication of rust .	X	
	Any characteristic not in accordance with the specified requirements	X	
Construction and workmanship, general	Part missing	X	
	Sharp burr or edges that may be injurious to personnel	X	
	Fractured, split, sprung, cracked, malformed, dented, bowed, broken, or otherwise impaired	X	
	Functional components that require abnormal force to operate ..	X	

Examine	Defect	Classification	
		Major	Minor
Construction and workmanship, general (cont'd)	Any adjustable part that cannot be adjusted or is not properly adjusted to perform the functions intended	X	
	Misplaced, loose, or not in proper alignment	X	
	Not connected or joined as specified	X	
Welding and brazing (where applicable)	Missing	X	
	Completely broken or not fused	X	
	Burnt holes, slag inclusion, non-continuous where required, undercut, cracked, or partially broken	X	
	Excess weld or braze		X
Riveting (where applicable)	Missing	X	
	Loose, cracked, broken, or otherwise damaged	X	
Bolts, nuts, screws, studs, and other types of threaded fasteners	Missing	X	
	Broken, stripped, or fractured	X	
Assembly	Unit not properly assembled or secured or does not function as required	X	
	Unit perceptibly out of alignment .	X	
Marking identification	Missing, incomplete, not legible, not permanent, or not as specified		X

4.2.3.2 Dimensional examination. Examination shall be made of end item to determine compliance with dimensional requirements. Any dimension that is not within established tolerances shall be classified a de-

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fect. The inspection level shall be L8 with an AQL of 2.5 defects expressed in defects per hundred units.

4.2.3.3 Testing of the end product. Draw knives of each type shall be tested as specified in 4.3.4 to determine compliance with the requirements of 3.2. The sample unit shall be one draw knife of one type. The inspection level shall be level L8 with an AQL of 1.5 defects expressed in defects per hundred units.

4.2.4 Examination of preparation for delivery. Inspection to determine compliance with preparation for delivery shall be made in accordance with MIL-H-15424.

4.3 Tests.

4.3.1 Surface roughness test. Sample specimens having a surface finish as actually produced by using an 80-grit, 100-grit or 180-grit abrasive, as applicable, shall be used for comparison testing (visual) of the handle arms, ferrules, caps and blade. The material for the specimens shall be similar to the material of the component being inspected.

4.3.2 Coating thickness test. Tests for coating thickness shall be performed in accordance with the applicable test method in Section 500 of Fed. Test Method Std. No. 151.

4.3.3 Hardness test. The draw knives shall be subjected to a hardness test to determine conformance with 3.4. The hardness readings shall be taken on the back of the blade, from 5/16 to 1/2 inch back from the cutting edge. A sufficient number of readings shall be taken to insure that those areas are of the required hardness along the entire length of the blade.

4.3.4 Operational test. The draw knives shall be subjected to a cutting test on hardwoods such as hard knots found in seasoned black spruce or yellow pine. The tests shall be of sufficient duration to indicate that the

cutting edge will not chip, dull, or deform under normal service conditions.

5. PREPARATION FOR DELIVERY

(For civil agency procurement, Fed. Std. No. 102 should be referred to for definitions and applications of the various levels of preservation, packaging, and packing.)

5.1 Preservation and packaging. Preservation and packaging shall be level A or C, as specified (see 6.1).

5.1.1 Level A. Knives of one type and size only shall be preserved and packaged in accordance with the applicable requirements of MIL-H-15424.

5.1.2 Level C. Cleaning, preservation, and packaging shall be in accordance with the supplier's commercial practice.

5.2 Packing. Packing shall be level A, B, or C, as specified (see 6.1).

5.2.1 Levels A and B. Knives of one type and size only, preserved and packaged as specified in 5.1, shall be packed in accordance with the applicable requirements of MIL-H-15424.

5.2.2 Level C. Knives, packaged as specified (see 6.2), shall be packed in a manner to insure carrier acceptance and safe delivery at destination. Containers shall be in accordance with rules or regulations as applicable to the mode of transportation.

5.3 Marking.

5.3.1 Civil agencies. In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.3.2 Military requirements. In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Ordering data. Purchasers should exercise any desired options offered herein, and procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Type of knife required (see 1.2.1).
- (c) If a specific blade is required, specify whether straight or curved (see 3.2).
- (d) Length of blade required (see table I).
- (e) Inspection record details (see 4.1).
- (f) Levels of preservation, packaging, and packing (see 5.1 and 5.2).
- (m) Marking, if different (see 5.3).

6.2 Transportation description. Transportation description and minimum weights applicable to this commodity are:

Rail:

Tools, not otherwise indexed by name.

Carload minimum weight 30,000 pounds.

Motor:

Tools, hand, not otherwise indexed.

Truckload minimum weight 30,000 pounds, subject to Rule 115, National Motor Freight Classification.

Notice. When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

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