Downloaded from http://www.everyspec.com

QQ-S-632C
March 21, 1973
SUPERSEDING
Fed. Spec. QQ-S-632B
October 28, 1963

FEDERAL SPECIFICATION

STEEL BAR, REINFORCING (FOR CONCRETE)

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 steel bars for use in the reinforcement of concrete.

1.2 Classification.

1.2.1 Types and classes. Steel bars shall be of the following types and classes, for bar designations specified in Table I, (see 6.2):

Type I - Plain.
Type II - Deformed.
Class B40 - Billet-steel.
Class C40 - Car-axle-steel.
Class R50 - Rail-steel.
Class B60 - Billet-steel.
Class C60 - Car-axle-steel.
Class R60 - Rail-steel.
Class B75 - Billet-steel

TABLE I. Type, class and bar designations

Type	Class	Bar designation
I, Plain	B40, C40, R50, B60, C60, R60	Up to 1-1/4 inches inclusive in 1/8 inch increments
II, Deformed	B40, C40, R50, B60, C60, R60,	3-11 inclusive in 1/8 inch increments.
	B60, B75	14-18

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

Federal Standards:

Fed. Std. No. 48 - Tolerances for Steel Wrought Products and for Centrifugally Cast Steel.
Fed. Test Method Std No. 151 - Metals, Test Methods.

(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 and Standards 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, DC 20402.

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, WA.

Downloaded from http://www.everyspec.com

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

Military Standard:

MIL-STD-163 - Steel Mill Products Preparation for Shipment and Storage.

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

American Society for Testing and Materials (ASTM) Standards:

A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
A616 - Standard Specification for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement.
A617 - Standard Specification for Axle-Steel Deformed and Plain Bars for Concrete Reinforcement.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

2.2 Other publications. The following documents form a part of the specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the National Motor Freight Traffic Association, Inc., Agent, 1616 P Street N.W. Washington, DC 20036.)

Uniform Classification Committee, Agent:

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Tariff Publishing Officer, Room 202 Union Station, 516 W. Jackson Blvd., Chicago, IL 60606.)

3. REQUIREMENTS

3.1 General. Unless otherwise specified here-in, type I and type II bars shall conform to the requirements specified in the ASTM designations listed in table II.

TABLE II. Applicable ASTM designation

Material	ASTM Designation
Billet-steel	A615
Rail-steel	A616
Car-axle-steel	A617

3.2 Length. Unless otherwise specified (see 6.2), bars shall be furnished in random length.

3.3 Chemical analysis. Unless otherwise specified (see 6.2), the manufacturer shall certify in writing to the contracting officer or his representative the chemical content of the reinforcing bars as specified in the applicable ASTM designation listed in table II. The phosphorus content of billet-steel shall not exceed 0.05 percent.

3.4 Permissable variations in length. Permissable variations in length shall conform to Fed. Std. No. 48.

Downloaded from http://www.everyspec.com

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the Government. 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.

4.2.1 Lot. Unless otherwise specified (see 6.2), a lot shall consist of all bars of the same cross sectional area and pattern of deformation, or plain, as applicable, offered for delivery at one time.

4.2.2 Tension and bend samples. Tension and bend samples shall be selected in accordance with the applicable ASTM designation listed in table II.

4.3 Test methods.

4.3.1 Bending and tension. Tests for bars shall be conducted in accordance with the procedures of the applicable ASTM designation listed in table II.

4.3.2 Chemical analysis. The analytical procedure shall be in accordance with method 111.2 or 112.2 of Fed. Test Method Std. No. 151. In case of dispute, method 111.2 shall be used for referee analysis (see 3.3).

4.4 Rejection and retests. In case of failure of the test specimens to meet the requirements, rejection and retests shall be in conformance with Fed. Test Method Std. No. 151.

4.5 Inspection of preparation for delivery. The packing and marking of reinforcing steel bar, for concrete, shall be inspected to determine conformance of requirements in section 5.

5. PREPARATION FOR DELIVERY

5.1 Packing and marking. Reinforcing steel bars shall be packed and marked in accordance with MIL-STD-163 as specified for the applicable levels (see 6.2).

6. NOTES

6.1 Intended use. Steel bars covered by this specification are intended for reinforcing concrete.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

(a) Title, number, and date of this specification.
(b) Type, class, and bar designations required (see 1.2.1).
(c) When No. 14 and No. 18 bars require bending properties, order in accordance with supplemental requirements S1 of ASTM A615.
(d) Exact lengths, if required (see 3.2).
(e) When chemical analysis not required (see 3.3).
(f) Size of lot, if different from (see 4.2.1).
(g) Level of packing require (see 5.1).

6.3 Size. Bars are available in accordance with table III.

Downloaded from http://www.everyspec.com

TABLE III. Dimensions and weights, bar designations 1/

Bar Designation No. 2/ 3/	Nominal Unit weight		Nominal dimensions					
			Diameter		Cross sectional area		Perimeter	
	lb/ft	kg/m	Inches	mm	Inches/Sq.	cm/Sq.	Inches	mm
3	0.376	0.560	0.375	9.52	0.11	0.71	1.178	29.9
4	0.668	0.994	0.500	12.70	0.20	1.29	1.571	39.9
5	1.043	1.552	0.625	15.88	0.31	2.00	1.963	49.9
6	1.502	2.235	0.750	19.05	0.44	2.84	2.356	59.8
7	2.044	3.042	0.875	22.22	0.60	3.87	2.749	69.8
8	2.670	3.973	1.000	25.40	0.79	5.10	3.142	79.8
9	3.400	4.960	1.128	28.65	1.00	6.45	3.544	90.0
10	4.303	6.403	1.270	32.26	1.27	8.19	3.990	101.4
11	5.313	7.906	1.410	35.81	1.56	10.06	4.430	112.5
14	7.65	11.384	1.693	43.00	2.25	14.52	5.32	135.1
18	13.60	20.238	2.257	57.33	4.00	25.81	7.09	180.1

1/ The nominal dimensions of a deformed bar are equivalent to those of a plain round bar having the same weight per foot as the deformed bar.
2/ Bar numbers are based on the number of eighths of an inch included in the nominal diameter of the bars.
3/ Plain rounds are available in 1/8 inch increments from 1/8 inch to 1-1/4 inch diameter.

MILITARY CUSTODIANS:

Army - ME
Navy - YD
Air Force - 84

User activity:

Army - CE

Preparing activity:

GSA-FSS

Civil Agency Coordinating Activities:

COMMERCE-NBS
GSA-FSS, PCD
HEW-FEC
INTERIOR-BPA
NASA-JFK
USDA-AFS

Orders for this publication are to be placed with the General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 10 cents each.

Downloaded from http://www.everyspec.com

FOLD

DEPARTMENT OF THE NAVY

POSTAGE AND FEES PAID
NAVY DEPARTMENT

OFFICIAL BUSINESS

Chief of Engineers
Dept. of Army
Attn: DAEN-MCE-S
Washington, DC 20314

FOLD

PLATE NO. 15419 (BACK)

Downloaded from http://www.everyspec.com

SPECIFICATION ANALYSIS SHEET

Form Approved
Budget Bureau No. 119-R004

INSTRUCTIONS

This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity *(as indicated on reverse hereof)*.

SPECIFICATION

ORGANIZATION *(Of submitter)*

CITY AND STATE

CONTRACT NO.

QUANTITY OF ITEMS PROCURED

DOLLAR AMOUNT
$

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES.

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

☐ YES ☐ NO IF "YES", IN WHAT WAY?

4. REMARKS *(Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)*

SUBMITTED BY *(Printed or typed name and activity)*

DATE