MILITARY SPECIFICATION

WIRE, STEEL, CORROSION-RESISTANT, HIGH STRENGTH (AM 355)

This specification has been approved by the Department of the Air Force and by the Naval Air Systems Command.

1. SCOPE

1.1 Scope.- This specification covers a premium quality round high-strength wire of corrosion-resistant steel.

1.2 Classification.- The composition, size, and length shall be as specified in the procurement documents (see 6.2).

1.2.1 Composition.- The chemical composition of the wire shall conform to table I.

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

Federal

UU-P-271	Paper, Wrapping, Waterproofed Kraft

Military

MIL-B-121	Barrier Material, Greaseproofed, Waterproofed, Flexible

STANDARDS

Federal

Fed. Test Method Std. No. 151	Metals, Test Methods

Military

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

(Copies of specifications, standards, drawings and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

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

American Society for Testing and Materials

ASTM A318-56 Tension Testing of Steel Spring Wire

(Copies of ASTM publications may be obtained from the American Society for Testing and Materials, 1916 Race St., Philadelphia, Pa. 19103.)

Naval Air Engineering Center

Drawing D-11711 Spool, Towline, Shipping, 500 Pounds Capacity

(Copies of NAEC drawings may be obtained from the Aeronautical Materials Laboratory, Naval Air Engineering Center, Philadelphia, Pa. 19112.)

3. REQUIREMENTS

3.1 Chemical composition.- The composition shall conform to the limits of table I. Individual determinations may vary from the specified range to the extent indicated in the check analysis column, except that elements in any heat shall not vary both above and below the specified range.

TABLE I. Chemical composition

Element	Range (percent)	Check analysis tolerance (percent)
Carbon	0.10 - 0.15	±0.02
Manganese	0.50 - 1.25	±0.02
Silicon	0.50 max.	±0.02
Phosphorous	0.040 max.	+0.005
Sulfur	0.030 max.	+0.005
Chromium	15.00 - 16.00	±0.25
Molybdenum	2.50 - 3.25	±0.10
Copper	—	—
Nickel	4.00 - 5.00	±0.05
Nitrogen	0.07 - 0.13	—
Carbon-nitrogen	0.17 - 0.28	—

3.2 Dimensions - diametral tolerances.- The permissible variation from the nominal diameter shall be ±3 percent of the diameter. The tolerance on out-of-roundness shall be one-half the diametral tolerance.

3.3 Mechanical properties - ductility and tensile.- The ductility and tensile breaking strength minimum requirements shall be as specified in table II for various wire diameters, when tested as specified in 4.3.4.2 and 4.3.5.2, respectively.

TABLE II. Ductility, torsion, and tensile strength requirements

Wire diameter, inclusive (inch)	Torsion, number of 360° twists	Ductility test		AM-355 Minimum tensile strength 1/
		Sheave diameter (inch) 2/	Sheave center spacing (inch) 2/	Stress (ksi)
0.0032 - .0035	----	----	----	---
.004	----	----	----	490
.005	----	----	----	465
.006	90	----	----	465
.008	90	----	----	445
.010	90	----	----	440
.012	85	----	----	430
.014	75	----	----	425
.015	75	----	----	420
.016	75	----	----	417
.018	60	----	----	415
.020	60	----	----	400
.022	60	----	----	400
.024	60	----	----	395
.025	50	.866	1.0	390
.028	50	.866	1.0	390
.032	44	1.181	1.38	380
.036	44	1.181	1.38	380
.040 - .045	44	1.181	1.38	380
.046 - .049	37	1.181	1.38	380
.050 - .053	34	1.181	1.38	380
.054 - .058	30	1.457	1.62	380
.060 - .072	25	1.457	1.62	370

1/ The maximum breaking load shall be not greater than 25 ksi above the permissible minimum strength.

2/ Tolerance on roll groove diameter +0.050, -0 inch. Tolerance on distance between centers, ±0.12 inch.

3.4 Joints.- Wire rods and wires may be joined by welding, provided such operations are accomplished in the initial stages of processing, and that microstructural changes due to welding are subsequently eliminated by repeated annealing and drawing operations.

3.5 Workmanship.- Wire shall be free from defects such as seams, pits, die marks, scrapes, cold shuts and other material or surface imperfections tending to impair the serviceability of the wire.

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 supplies and services conform to prescribed requirements.

4.2 Classification of inspections.- The examining and testing of the wire shall be classified as quality conformance inspections.

4.3 Inspection methods.-

4.3.1 Dimensional visual inspection.- Two determinations of wire diameter shall be made on the wire on each shipping reel. The exposed surface of wire shall be visually examined for compliance with workmanship requirements while being wound on the shipping reels.

4.3.2 Chemical composition.-

4.3.2.1 Sampling.- One sample for testing shall be selected to represent ten shipping reels of wire of one diameter and composition, except that when wire supplied can be positively identified with the specific heat of steel from which the wire material was obtained, certified copies of the ladle analysis supplied by the steel producer will be acceptable.

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.

SPECIFICATION

MIL-W-8958(ASG) Wire, Steel, Corrosion-Resistant, High Strength (AM 355)

ORGANIZATION	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

DD Form 1426