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INTERNATIONAL
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SURFACE VEHICLE RECOMMENDED PRACTICE

Submitted for recognition as an American National Standard

SAE J230 | REV. JUN94

Issued 1971-02
Revised 1994-06

Superseding J230 DEC88

(R) STAINLESS STEEL, SAE 30302, SPRING WIRE AND SPRINGS

***Foreword*—**This Document has not changed other than to put it into the new SAE Technical Standards Board Format.

1. ***Scope*—**This SAE Recommended Practice covers a high-strength corrosion-resisting steel wire, uniform in mechanical properties, intended for the manufacture of springs and wire forms. It also covers processing requirements of springs and forms fabricated from this wire.

2. ***References***

2.1 **Applicable Publications—**The following publications form a part of the specification to the extent specified herein.

2.1.1 ASTM PUBLICATIONS—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM A 313—Specification for Chromium-Nickel Stainless and Heat-Resisting Steel Spring Wire
ASTM A 555—Specification for General Requirements for Stainless and Heat-Resisting Steel Wire and Wire Rods
ASTM A 555M—Specification for General Requirements for Stainless and Heat-Resisting Steel Wire and Wire Rods (Metric)

3. ***Wire***

3.1 The wire shall conform to ASTM A 313 Type 302 Class 1 and ASTM A 555/A 555M.

3.2 **Welds—**Each unit shall be a continuous length with welds being permitted before final drawing. Welds are not permitted at finished size except by negotiation between manufacturer and user.

3.3 **Surface Condition—**Surface of the wire shall be free from injurious imperfections, such as seams, pits, die scratches, and other defects which will impair the serviceability of the part. (Visually examine at 10X magnification.)

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4. Springs

4.1 Surface Condition—The surface condition of the finished parts shall be as described for the wire, except in certain instances where shot peening might be used. In addition, there shall be no excessive coiling marks, nicks, or gouges which would impair the serviceability of the part. When the springs are shot peened, the surface appearance will be altered. Because of a resulting decrease in the spring resistance to relaxation, shot peening is permitted only when agreed upon by the purchaser. After shot peening, the springs shall be stress relieved at 230 to 260 °C (450 to 500 °F) for a minimum of 30 min at heat.

4.2 Lead Removal—Lead coatings shall be removed from springs prior to stress relieving when a temperature of 290 °C (550 °F) or above is required.

4.3 Cleaning and Passivation—Springs made from this wire must be cleaned and passivated after coiling to insure maximum corrosion resistance of the stainless steel. All metallic coatings must be removed prior to heat treatment. One procedure is as follows:

a. Remove drawing compounds from the wire surface by a 5 min dip in alkaline cleaner at approximately 90 °C (190 °F) followed by a water rinse.
b. Remove metallic and most nonmetallic coatings from the wire surface and passivate the surface by immersing parts in a nitric acid solution of 15 to 25% at 60 to 70 °C (140 to 160 °F) for 5 min or until clean. Follow with a water rinse.

4.4 Heat Treatment—Springs made from this wire are normally stress relieved for a minimum of 30 min. Typical temperatures are 290 to 320 °C (550 to 600 °F). It should be recognized that other than typical stress relieving temperatures may be used or omitted completely, depending upon the spring design and application.

5. Notes

5.1 Marginal Indicia—The change bar (l) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

PREPARED BY THE SAE IRON AND STEEL TECHNICAL COMMITTEE DIVISION 17—SPRING WIRE