

ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

STEEL, SPRING, SHOCK ABSORBER VALVES

ESF-M1A15-A2

1. SCOPE

The material defined by this specification is a hardened, tempered and bright polished, specially flattened carbon spring steel in strip form.

2. APPLICATION

This specification was released for material used to manufacture valve discs and reeds for automotive shock absorbers.

3. REQUIREMENTS

3.1 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.2 CHEMICAL COMPOSITION

Carbon	0.90 - 1.05
Manganese	0.25 - 0.50
Silicon	0.15 - 0.30
Phosphorus	0.03 max
Sulfur	0.04 max

Carbon content of 0.80 - 0.90 is acceptable if other requirements of this specification are met.

3.3 MECHANICAL PROPERTIES (ASTM E 8)

<u>Nominal Thickness</u>	<u>Tensile Strength</u>
0.005 in (0.13 mm)	292/320,000 psi (2010/2200 MPa)
0.008 in (0.20 mm)	278/311,000 psi (1920/2140 MPa)
0.010 in (0.25 mm)	270/298,000 psi (1860/2050 MPa)
0.012 in (0.31 mm)	263/291,000 psi (1820/2010 MPa)

Date	Action	Revisions
2002 10 03	Revised	Was ESF-M1A15-A, made ESF-M1A15-A2, replaced M1A15-A updated and renumbered R. Lord
1980 05 01	3.2	Revisions to Tensile Strengths CEK2-877352-C7
1963 02 28		Released ECR 403163 CF9-119267 #1

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3.3.1 The material shall be of uniform hardness throughout and free from internal stresses and decarburization.

3.4 SURFACE

The surface shall be polished, free from pits, scratches, scale and rust. A blue polished surface may be used.

3.5 FLATNESS

The flatness of the material shall be as specified on the engineering drawing.

3.6 EDGE FINISH

The slit edge shall be filed smooth and free from burrs.

3.7 THICKNESS TOLERANCE

Unless otherwise specified on Engineering Drawing, the following thickness tolerances shall apply:

<u>Nominal Thickness</u>	<u>Tolerance - Plus or Minus</u>
0.005 in (0.13 mm)	0.00028 in (0.0071 mm)
0.008 in (0.20 mm)	0.00036 in (0.0091 mm)
0.010 in (0.25 mm)	0.00044 in (0.0112 mm)
0.012 in (0.31 mm)	0.00052 in (0.0132 mm)