SAE The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

SURFACE VEHICLE STANDARD

SAE J402 REV. NOV93

Issued 1912-01
Revised 1993-11-08

Superseding J402 DEC88

Submitted for recognition as an American National Standard

SAE NUMBERING SYSTEM FOR WROUGHT OR ROLLED STEEL

1. *Scope*—This SAE Standard is intended to supply a uniform means of designating wrought ferrous materials reported in SAE Standards and Recommended Practices.

A numerical index system is used to identify the compositions of the SAE steels. This system makes it possible to use numbers on shop drawings and blueprints to describe partially the composition of the material. A four-numeral series is usually used to designate standard alloy and carbon steels specified to chemical composition ranges. There are certain types of alloy steels which are designated by five numerals. The prefix E is used to designate steels which are made by the basic electric furnace process with special practices. The suffix H is used to designate standard hardenability steels. The last two digits of the four-numeral series and the last three digits of the five-numeral series are intended to indicate the approximate mean of the carbon range. For example, in the Grade 1035, 35 represents a carbon range of 0.32 to 0.38% and in Grade E52100, 100 represents a carbon range of 0.98 to 1.10%. It is necessary, however, to deviate from this system and to interpolate numbers in the case of some carbon ranges, and for variations in manganese, sulfur, or other elements with the same carbon range. The first two digits of the SAE numeral series for the various grades of alloy and carbon steel are given in Table 1.

The Unified Numbering System (UNS) is described in greater detail in SAE J1086 and ASTM E 527.

The basic numerals of the various types of standard and formerly standard SAE steels are given in the table.

2. *References*

2.1 Applicable Documents—The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J403—Chemical Compositions of SAE Carbon Steels
SAE J404—Chemical Compositions of SAE Alloy Steels
SAE J405—Chemical Compositions of SAE Wrought Stainless Steels
SAE J1081—Potential Standard Steels
SAE J1086—Numbering Metals and Alloys
SAE J1249—Former SAE Standard and Former SAE Ex-Steels

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(R) TABLE 1—VARIOUS GRADES OF ALLOY AND CARBON STEEL

Numerals and Digits UNS	Numerals and Digits SAE	Type of Identifying Elements	Refer to SAE Standard or Information Report - JXXX for Composition Limits
		CARBON STEELS	
G10XX0	10XX	Nonresulfurized, Manganese 1.00% maximum	403 and 1249
G11XX0	11XX	Resulfurized	403 and 1249
G12XX0	12XX	Rephosphorized and Resulfurized	403
G15XX0	15XX	Nonresulfurized, Manganese Maximum over 1.00%	403 and 1249
G13XX0	13XX	ALLOY STEELS	
G23XX0	23XX	Manganese Steels	404 and 1249
G25XX0	25XX	Nickel Steels	1249
G31XX0	31XX	Nickel Steels	1249
G32XX0	32XX	Nickel-Chromium Steels	1249
G33XX0	33XX	Nickel-Chromium Steels	1249
G34XX0	34XX	Nickel-Chromium Steels	1249
G40XX0	40XX	Nickel-Chromium Steels	1249
G41XX0	41XX	Molybdenum Steels	404 and 1249
G43XX0	43XX	Chromium-Molybdenum Steels	404 and 1249
G44XX0	44XX	Nickel-Chromium-Molybdenum Steels	404 and 1249
G46XX0	46XX	Molybdenum Steels	404 and 1249
G47XX0	47XX	Nickel-Molybdenum Steels	404 and 1249
G48XX0	48XX	Nickel-Chromium-Molybdenum Steels	404
G50XX0	50XX	Nickel-Molybdenum Steels	404 and 1249
G51XX0	51XX	Chromium Steels	404 and 1249
G50XX6	50XXX	Chromium Steels	404 and 1249
G51XX6	51XXX	Chromium Steels	404
G52XX6	52XXX	Chromium Steels	404
G61XX0	61XX	Chromium Steels	404
G71XX0	71XXX	Chromium-Vanadium Steels	404 and 1249
G72XX0	72XX	Tungsten-Chromium Steels	1249
G81XX0	81XX	Tungsten-Chromium Steels	1249
G86XX0	86XX	Nickel-Chromium-Molybdenum Steels	404
G87XX0	87XX	Nickel-Chromium-Molybdenum Steels	404 and 1249
G88XX0	88XX	Nickel-Chromium-Molybdenum Steels	404 and 1249
G92XX0	92XX	Nickel-Chromium-Molybdenum Steels	404
G93XX0	93XX	Silicon-Manganese Steels	404 and 1249
G94XX0	94XX	Nickel-Chromium-Molybdenum Steels	404 and 1249
G97XX0	97XX	Nickel-Chromium-Molybdenum Steels	404 and 1249
G98XX0	98XX	Nickel-Chromium-Molybdenum Steels	1249
		Nickel-Chromium-Molybdenum Steels	1249
GXXXX1	XXBXX	CARBON AND ALLOY STEELS	
GXXXX4	XXLXX	B denotes Boron Steels	403 and 404
—	XXVXX	L denotes Leaded Steels	403 and 404
		V denotes Vanadium Steels	J403[1]
S2XXXX	302XX	STAINLESS STEELS	
S3XXXX	303XX	Chromium-Nickel Steels	405
S4XXXX	514XX	Chromium-Nickel Steels	405
S5XXXX	515XX	Chromium Steels	405
		Chromium Steels	405
None	PS–	POTENTIAL STANDARD STEELS	
		SAE Experimental Steels	1081

[1] Applies to carbon steels only.

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2.1.2 ASTM PUBLICATION—Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM E 527—Practice for Numbering Metals and Alloys (UNS)

3. Notes

3.1 **Marginal Indicia**—The (R) is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report title.

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PREPARED BY THE SAE IRON AND STEEL TECHNICAL COMMITTEE DIVISION 1—
CARBON AND ALLOY STEELS

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