

Technical Bulletin



SAE & AISI Steel Identification System

SAE and AISI use a numerical index system identify the compositions of steels. This system is partially descriptive of the composition of the steel identified by such numbers.

The first digit indicates the group to which the steel belongs; thus “1-” indicates a carbon steel; “2-” a nickel steel, and “3-” a nickel chromium steel. In the case of the simple alloy steels the second digit generally indicates the approximate percentage of the predominant alloying element. Usually the last two or three digits indicate the average carbon content in “points,” or hundredths of 1%. Thus “2340” indicates a nickel steel of approximately 3% nickel and 0.40% carbon and “71360” indicates a tungsten steel of about 13% tungsten and 0.60% carbon.

In some instances, in order to avoid confusion it has been necessary to depart from this identification system by varying the second and third digits of the number. An example of this is the steel numbers selected for several of the corrosion and heat resisting alloys.

The basic index system for the various types of SAE and AISI steel are:

<u>Type of Steel & Normal Alloy Content, %</u>	<u>Numerals & Digits</u>
Carbon Steels	1xxx
Plain Carbon (Manganese 1.00 max.)	10xx
Resulfuized	11xx
Resulfuized & rephosphorized	12xx
Plain carbon (max. Manganese range 1.00 - 1.65)	15xx
Manganese steels 1.75	13xx
Nickel Steels	2xxx
0.50 Nickel	20xx
1.50 Nickel	21xx
3.50 Nickel	23xx
5.00 Nickel	25xx
Nickel-Chromium Steels	3xxx
1.25 Nickel, 0.65 Chromium	31xx
1.75 Nickel, 1.07 Chromium	32xx
3.50 Nickel, 1.50 Chromium	33xx
3.00 Nickel, 0.77 Chromium	34xx
Molybdenum Steels	4xxx
Molybdenum .20 & .25	40xx
Chromium .50, .80 & .95 Molybdenum .12, .20, .25 & .30	41xx

(Chart continued on next page)

The last two xx digits of these designations indicates that the carbon content (in hundredths of a percent) is to be inserted.

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SAE & AISI Steel Identification System (con't)

<u>Type of Steel & Norminal Alloy Content, %</u>	<u>Numerals& Digits</u>
Nickel-Chromium-Molybdenum Steels	4xxx
Nickel 1.82 Chromium .50 Molybdenum .25	43xx
Nickel 1.82 Chromium .50 Molybdenum .12 & .25 Vanadium .03	43BVxx
Nickel 1.05 Chromium .45 Molybdenum .20 & 35	47xx
Nickel .30 Chromium .40 Molybdenum .12	81xx
Nickel .55 Chromium .50 Molybdenum .20	86xx
Nickel .55 Chromium .50 Molybdenum .25	87xx
Nickel .55 Chromium .50 Molybdenum .35	88xx
Nickel 3.25 Chromium 1.20 Molybdenum .12	93xx
Nickel .45 Chromium .40 Molybdenum .12	94xx
Nickel .55 Chromium .20 Molybdenum .20	97xx
Nickel 1.00 Chromium .80 Molybdenum .25	98xx
Nickel-Molybenum Steels	
Nickel .85 & 1.82 Molybdenum .20 & .25	46xx
Nickel 3.50 Molybdenum .25	48xx
Chromium Steels	5xxx
Chromium .27, .40, .50 & .65	50xx
Chromium .81, .87, .92, 1.00 & 1.05	51xx
Chromium (Bearing) Steels	
Chromium .5 Carbon 1.00 Min.	50xxx
Chromium 1.02 Carbon 1.00 Min.	51xxx
Chromium 1.45 Carbon 1.00 Min.	52xxx
Chromium Vanadium Steels	
Chromium .60, .80 & .95 Vanadium .10 & .15	61xx
Tungsten-Chromium Steels	7xxx
Tungsten 1.75 Chromium .75	72xx
Silicon Manganese Steels	9xxx
Silicon 1.40 & 2.00 Manganese .65, .82 & .85 Chromium 0 & .65	92xx
High-Strength Low-Alloy Steels	
Various SAE Grades	9xx
Boron Steels	
"B" Denotes Boron Steels	xxBxx
Leaded Steels	
"L" Denotes Leaded Steels	xxLxx

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