Estimated Mechanical Properties and Machinability Ratings of Re-Sulfurized Carbon Steel Bars(a)

Estimated Minimum Values							
AISI And SAE No.	**Type of Processing**	**Tensile Strength psi**	**Yield Strength psi**	**Eiongation In 2 in., %**	**Reduction in Area, %**	**Brinell Hardness**	**Average Machinability Rating (Cold Drawn 1112= 100%)**
1006	Hot rolled Cold drawn	43,000 48,000	24,000 41,000	30 20	55 45	86 95	50
1008	Hot rolled Cold drawn	44,000 49,000	24,500 41,500	30 20	55 45	86 95	55
1010	Hot rolled Cold drawn	47,000 53,000	26,000 44,000	28 20	50 40	95 106	55
1012	Hot rolled Cold drawn	48,000 54,000	26,500 45,000	28 19	50 40	95 105	55
1015	Hot rolled Cold drawn	50,000 56,000	27,500 41,000	20 18	50 40	101 111	60
1016	Hot rolled Cold drawn	55,000 61,000	30,000 51,000	25 18	50 40	111 121	70
1017	Hot rolled Cold drawn	53,000 59,000	29,000 49,000	26 16	50 40	105 116	65
1018	Hot rolled Cold drawn	58,000 84,000	32,000 54,000	25 15	50 40	118 126	70
1019	Hot Rolled Cold drawn	59,000 66,000	32,500 55,000	25 15	50 40	118 131	70
1020	Hot rolled Cold drawn	55,000 61,000	30,000 51,000	25 15	50 40	111 121	65
1021	Hot rolled Cold drawn	61,000 68,000	33,000 57,000	24 15	48 40	116 131	70
1022	Hot rolled Cold drawn	62,000 69,000	34,000 58,000	23 15	47 40	121 137	70
1023	Hot rolled Cold drawn	58,000 52,000	31,000 52,500	25 15	50 40	111 121	65
1025	Hot rolled Cold drawn	58,000 64,000	32,000 54,000	25 15	50 40	118 126	65
1026	Hot rolled Cold drawn	64,000 71,000	35,000 60,000	24 15	49 40	126 143	75
1030	Hot rolled Cold drawn	68,000 76,000	37,500 64,000	20 12	42 35	137 149	70
1035	Hot rolled Cold drawn	72,000 60,000	39,500 67,000	18 12	40 35	143 163	65

1037	Hot rolled Cold drawn	74,000 82,000	40,500 69,000	18 12	40 35	143 167	 65
1038	Hot rolled Cold drawn	75,000 83,000	41,000 70,000	18 12	40 35	149 163	 65
1039	Hot rolled Cold drawn	79,000 88,000	43,500 74,000	16 12	40 35	156 179	 60
1040	Hot rolled Cold drawn	76,000 85,000	42,000 71,000	18 12	40 35	149 170	 60
1042	Hot rolled Cold drawn NCDb	80,000 89,000 85,000	44,000 75,000 73,000	16 12 12	40 35 45	163 179 179	 60 70
1043	Hot rolled Cold drawn NCDb	82,000 91,000 87,000	45,000 77,000 75,000	16 12 12	40 35 45	163 179 179	 60 70
1044	Hot rolled	80,000	44,000	16	40	163	
1045	Hot rolled Cold drawn ACDa	82,000 91,000 85,000	45,000 77,000 73,000	16 12 12	40 35 45	163 179 170	 55 65
1046	Hot rolled Cold drawn ACDa	85,000 94,000 90,000	47,000 79,000 75,000	15 12 12	40 35 45	170 187 179	 55 65

a ACD represents annealed cold drawn.
b NCD represents normalized cold drawn.

Estimated Minimum Values						
'pe of cessing	**Tensile Strength, psi**	**Yeild Strength psi**	**Eiongation In 2 in,, %**	**Reduction in Area, %**	**Brinell Hardness**	**Average Machinability Rating (Cold Drawn 1112-100%)**
t rolled	87,000	48,000	15	35	179	
l drawn	97,000	81,500	10	30	197	45
\CDa	92,000	77,000	10	40	187	55
t rolled	90,000	49,500	15	35	179	
l drawn	100,000	84,000	10	30	197	45
\CDa	95,000	80,000	10	40	189	55
t rolled	94,000	51,500	12	30	192	
\CDa	96,000	81,000	10	40	197	55
t rolled	98,000	54,000	12	30	201	
ACDc	90,000	70,000	10	45	183	60
t rolled	97,000	53,500	12	30	201	
ACDc	89,000	69,000	10	45	183	60
t rolled	100,000	55,000	12	30	207	
ACDc	92,000	71,000	10	45	187	60
t rolled	102,000	56,000	12	30	212	
ACDc	93,000	72,000	10	45	192	55
t rolled	105,000	58,000	12	30	217	
ACDc	94,500	73,000	10	40	192	55
t rolled	100,000	65,000	12	30	207	
ACDc	94,000	72,500	10	40	192	55
t rolled	112,000	61,500	10	25	229	
ACDc	98,000	74,000	10	40	192	45
t rolled	119,000	65,500	10	25	241	
ACDc	100,000	77,000	10	40	192	45
t rolled	121,000	66,500	10	25	248	
ACDc	100,500	78,000	10	40	192	45
t rolled	112,000	61,500	10	25	229	
ACDc	97,000	74,000	10	40	192	45
t rolled	122,000	67,000	10	25	248	
ACDc	101,000	71,000	10	40	197	45
t rolled	120,000	66,000	10	25	248	
ACDc	99,000	76,000	10	40	197	45
t rolled	74,000	41,000	20	42	149	
l drawn	82,000	69,000	12	35	163	60
t rolled	75,000	41,000	18	40	149	
l drawn	63,000	70,000	12	35	163	65
t rolled	83,000	45,500	16	40	163	

l drawn	92,000	77,500	12	35	187	56
t rolled	92,000	51,000	15	40	187	
l drawn	102,500	87,000	10	30	207	45
ACDa	94,000	80,000	10	46	184	60
t rolled	94,000	52,000	15	30	192	
l drawn	103,000	88,000	10	28	207	40
ACDa	95,000	85,000	10	35	187	45
t rolled	96,000	53,000	14	33	197	
l drawn	106,500	89,500	10	28	217	45
ACDa	93,500	78,500	10	35	192	50
t rolled	108,000	59,500	12	30	217	
ACDa	98,000	83,000	10	40	193	50

a ACD represents annealed cold drawn.
b NCO represents normalized cold drawn.
c SACD represents spheroidized annealed cold drawn.

rades with max. Mn in excess of 1%, have been renumbered 1500 series.

Estimated Minimum Values						
pe of essing	**Tensile Strength, psi**	**Yeild Strength, psi**	**Eiongation In 2 in., %**	**Reduction In Area, %**	**Brinell Hardness**	**Average Machinability Rating (Cold Drawn 1112 100%)**
rolled	50,000	27,500	30	50	101	
drawn	56,000	47,000	20	40	121	80
rolled	50,000	27,500	30	50	101	
drawn	56,000	47,000	20	40	121	80
rolled	62,000	34,000	23	47	121	
drawn	69,000	58,000	15	40	137	90
rolled	65,000	36,000	23	47	131	
drawn	72,000	61,000	15	40	143	85
rolled	62,000	34,000	23	47	121	
drawn	69,000	58,000	15	40	137	100
rolled	83,000	45,500	16	40	167	
drawn	92,000	77,000	12	35	183	75
rolled	88,000	48,000	15	35	179	
drawn	98,000	82,000	10	30	197	70
rolled	79,000	43,500	16	40	156	
drawn	88,000	74,000	12	35	170	70
rolled	94,000	51,500	15	35	187	
drawn	105,000	88,000	10	30	212	70
rolled	97,000	53,000	15	35	197	
drawn	108,000	90,000	10	30	217	80
rolled	85,000	47,000	15	40	170	

	Cold drawn	94,000	80,000	12	35	187	
1148	Hot rolled Cold drawn	55,000 94,000	47,000 80,000	15 12	40 35	170 187	 70
1151	Hot rolled Cold drawn	92,000 102,000	50,500 86,000	15 10	35 30	187 207	 65
1211	Hot rolled Cold drawn	55,000 75,000	33,000 58,000	25 10	45 35	121 163	 95
1212	Hot rolled Cold drawn	56,000 78,000	33,500 60,000	25 10	45 35	121 167	 100
1213	Hot rolled Cold drawn	56,000 78,000	33,500 60,000	25 10	45 35	121 167	 135
12L14	Hot rolled Cold drawn	57,000 78,000	34,000 60,000	22 10	45 35	121 163	 160

(a)All 1100 and 1200 series steels are rated on the basis of .10 max silicon or coarse grain melting practice