

COMPOSITIONS OF ALLOY STEELS

A PRACTICAL GUIDE TO THE USE
OF NICKEL-CONTAINING ALLOYS
N° 447

INCO

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Alloy Steel Compositions

Key to Print Type — Tables I to IV

- **Bold Face:** Standard Steels (1978)
- **Light Face:** Nickel Steels formerly Standard
- *Italics:* SAE Temporary Steel Numbers

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Notes — Tables I to IV

1. Prefix letter E is for basic electric furnace steel. All others normally are made by the basic open hearth or basic oxygen processes.
2. Silicon range is 0.20-0.35%, except silicon minimum is 0.15% for acid open hearth or acid electric furnace alloy steel. Phosphorus and sulfur limitations for each process follow:

	Maximum, %	
	P	S
Basic electric025	.025
Basic open hearth or basic oxygen035	.040
Acid electric050	.050
Acid open hearth050	.050

Incidental elements, not specified, are acceptable to the following maximum amounts: copper to 0.35%, nickel to 0.25%, chromium to 0.20%, and molybdenum to .06%.

3. The boron steels can be expected to contain .0005% minimum boron.

Table I
ALLOY STEELS
Ladle Chemical Ranges and Limits
Bars, Billets, Blooms and Slabs

AISI or SAE No.	Composition, %					
	C	Mn	Ni	Cr	Mo	Others and Remarks
1320	0.18-0.23	1.60-1.90	—	—	—	—
•1330	0.28-0.33	1.60-1.90	—	—	—	—
•1335	0.33-0.38	1.60-1.90	—	—	—	—
•1340	0.38-0.43	1.60-1.90	—	—	—	—
•1345	0.43-0.48	1.60-1.90	—	—	—	—
2317	0.15-0.20	0.40-0.60	3.25-3.75	—	—	—
2330	0.28-0.33	0.60-0.80	3.25-3.75	—	—	—
2335	0.33-0.38	0.60-0.80	3.25-3.75	—	—	AISI only
2340	0.38-0.43	0.70-0.90	3.25-3.75	—	—	—
2345	0.43-0.48	0.70-0.90	3.25-3.75	—	—	—
E2512	.09-0.14	0.45-0.60 ^b	4.75-5.25	—	—	SAE No. 2512
2515	0.12-0.17	0.40-0.60	4.75-5.25	—	—	—
E2517	0.15-0.20	0.45-0.60 ^b	4.75-5.25	—	—	SAE No. 2517
3115	0.13-0.18	0.40-0.60	1.10-1.40	0.55-0.75	—	—
3120	0.17-0.22	0.60-0.80	1.10-1.40	0.55-0.75	—	—
3130	0.28-0.33	0.60-0.80	1.10-1.40	0.55-0.75	—	—
3135	0.33-0.38	0.60-0.80	1.10-1.40	0.55-0.75	—	—
3140	0.38-0.43	0.70-0.90	1.10-1.40	0.55-0.75	—	—
3141	0.38-0.43	0.70-0.90	1.10-1.40	0.70-0.90	—	—
3145	0.43-0.48	0.70-0.90	1.10-1.40	0.70-0.90	—	—
3150	0.48-0.53	0.70-0.90	1.10-1.40	0.70-0.90	—	—
3240	0.35-0.45	0.30-0.60	1.50-2.00	0.90-1.25	—	—
E3310	.08-0.13	0.45-0.60 ^b	3.25-3.75	1.40-1.75	—	SAE No. 3310
E3316	0.14-0.19	0.45-0.60 ^b	3.25-3.75	1.40-1.75	—	SAE No. 3316
•4012 ^a	.09-0.14	0.75-1.00	—	—	0.15-0.25	—
•4023	0.20-0.25	0.70-0.90	—	—	0.20-0.30	—
•4024	0.20-0.25	0.70-0.90	—	—	0.20-0.30	S .035-.050
•4027	0.25-0.30	0.70-0.90	—	—	0.20-0.30	—
•4028	0.25-0.30	0.70-0.90	—	—	0.20-0.30	S .035-.050
•4032 ^a	0.30-0.35	0.70-0.90	—	—	0.20-0.30	—
•4037	0.35-0.40	0.70-0.90	—	—	0.20-0.30	—
•4042 ^a	0.40-0.45	0.70-0.90	—	—	0.20-0.30	—
•4047	0.45-0.50	0.70-0.90	—	—	0.20-0.30	—
•4118	0.18-0.23	0.70-0.90	—	0.40-0.60	.08-0.15	—
•4130	0.28-0.33	0.40-0.60	—	0.80-1.10	0.15-0.25	—
•4135 ^a	0.33-0.38	0.70-0.90	—	0.80-1.10	0.15-0.25	—
•4137	0.35-0.40	0.70-0.90	—	0.80-1.10	0.15-0.25	—
•4140	0.38-0.43	0.75-1.00	—	0.80-1.10	0.15-0.25	—
•4142	0.40-0.45	0.75-1.00	—	0.80-1.10	0.15-0.25	—
•4145	0.43-0.48	0.75-1.00	—	0.80-1.10	0.15-0.25	—
•4147	0.45-0.50	0.75-1.00	—	0.80-1.10	0.15-0.25	—
•4150	0.48-0.53	0.75-1.00	—	0.80-1.10	0.15-0.25	—

^a Listed in "1978 SAE Handbook," but not by AISI in 1977: Steel Products Manual, "Alloy, Carbon and High Strength Low Alloy Steels: Semifinished for Forging; Hot Rolled Bars, Cold Finished Bars; Hot Rolled Deformed and Plain Concrete Reinforcing Bars."

^b For open hearth steel the manganese is 0.40-0.60%.

Table I (continued)
ALLOY STEELS
Ladle Chemical Ranges and Limits
Bars, Billets, Blooms and Slabs

AISI or SAE No.	Composition, %					Others and Remarks
	C	Mn	Ni	Cr	Mo	
•4161	0.56-0.64	0.75-1.00	—	0.70-0.90	0.25-0.35	—
4317	0.15-0.20	0.45-0.65	1.65-2.00	0.40-0.60	0.20-0.30	—
•4320	0.17-0.22	0.45-0.65	1.65-2.00	0.40-0.60	0.20-0.30	—
4337	0.35-0.40	0.60-0.80	1.65-2.00	0.70-0.90	0.20-0.30	—
E4337	0.35-0.40	0.65-0.85	1.65-2.00	0.70-0.90	0.20-0.30	—
•4340	0.38-0.43	0.60-0.80	1.65-2.00	0.70-0.90	0.20-0.30	—
•E4340	0.38-0.43	0.65-0.85	1.65-2.00	0.70-0.90	0.20-0.30	—
•4419 ^a	0.18-0.23	0.45-0.65	—	—	0.45-0.60	—
•4422 ^a	0.20-0.25	0.70-0.90	—	—	0.35-0.45	—
•4427 ^a	0.24-0.29	0.70-0.90	—	—	0.35-0.45	—
4608	.06-0.11	0.25-0.45	1.40-1.75	—	0.15-0.25	Si 0.25 max
•4615	0.13-0.18	0.45-0.65	1.65-2.00	—	0.20-0.30	—
•4617 ^a	0.15-0.20	0.45-0.65	1.65-2.00	—	0.20-0.30	—
•4620	0.17-0.22	0.45-0.65	1.65-2.00	—	0.20-0.30	—
X4620	0.18-0.23	0.50-0.70	1.65-2.00	—	0.20-0.30	—
•4621 ^a	0.18-0.23	0.70-0.90	1.65-2.00	—	0.20-0.30	—
4640	0.38-0.43	0.60-0.80	1.65-2.00	—	0.20-0.30	—
•4626	0.24-0.29	0.45-0.65	0.70-1.00	—	0.15-0.25	—
•4718 ^a	0.16-0.21	0.70-0.90	0.90-1.20	0.35-0.55	0.30-0.40	—
•4720	0.17-0.22	0.50-0.70	0.90-1.20	0.35-0.55	0.15-0.25	—
4812	0.10-0.15	0.40-0.60	3.25-3.75	—	0.20-0.30	—
•4815	0.13-0.18	0.40-0.60	3.25-3.75	—	0.20-0.30	—
•4817	0.15-0.20	0.40-0.60	3.25-3.75	—	0.20-0.30	—
•4820	0.18-0.23	0.50-0.70	3.25-3.75	—	0.20-0.30	—
•5015	0.12-0.17	0.30-0.50	—	0.30-0.50	—	—
•5046 ^a	0.43-0.50	0.75-1.00	—	0.20-0.35	—	—
•5060 ^a	0.56-0.64	0.75-1.00	—	0.40-0.60	—	—
•5115 ^a	0.13-0.18	0.70-0.90	—	0.70-0.90	—	—
5117	0.15-0.20	0.70-0.90	—	0.70-0.90	—	—
•5120	0.17-0.22	0.70-0.90	—	0.70-0.90	—	—
•5130	0.28-0.33	0.70-0.90	—	0.80-1.10	—	—
•5132	0.30-0.35	0.60-0.80	—	0.75-1.00	—	—
•5135	0.33-0.38	0.60-0.80	—	0.80-1.05	—	—
•5140	0.38-0.43	0.70-0.90	—	0.70-0.90	—	—
•5145 ^a	0.43-0.48	0.70-0.90	—	0.70-0.90	—	—
•5147 ^a	0.46-0.51	0.70-0.95	—	0.85-1.15	—	—
•5150	0.48-0.53	0.70-0.90	—	0.70-0.90	—	—
•5155	0.51-0.59	0.70-0.90	—	0.70-0.90	—	—
•5160	0.56-0.64	0.75-1.00	—	0.70-0.90	—	—
•E50100 ^a	0.95-1.10	0.25-0.45	—	0.40-0.60	—	—
•E51100	0.98-1.10	0.25-0.45	—	0.90-1.15	—	—
•E52100	0.98-1.10	0.25-0.45	—	1.30-1.60	—	—

^a Listed in "1978 SAE Handbook," but not by AISI in 1977; Steel Products Manual, "Alloy, Carbon and High Strength Low Alloy Steels: Semifinished for Forging; Hot Rolled Bars, Cold Finished Bars; Hot Rolled Deformed and Plain Concrete Reinforcing Bars."

Table I (continued)
ALLOY STEELS
Ladle Chemical Ranges and Limits
Bars, Billets, Blooms and Slabs

AISI or SAE No.	Composition, %					Others and Remarks
	C	Mn	Ni	Cr	Mo	
•6118	0.16-0.21	0.50-0.70	—	0.50-0.70	—	V 0.10-0.15
•6150	0.48-0.53	0.70-0.90	—	0.80-1.10	—	V 0.15 min
•8115 ^a	0.13-0.18	0.70-0.90	0.20-0.40	0.30-0.50	.08-0.15	—
•8615	0.13-0.18	0.70-0.90	0.40-0.70	0.40-0.60	0.15-0.25	—
•8617	0.15-0.20	0.70-0.90	0.40-0.70	0.40-0.60	0.15-0.25	—
•8620	0.18-0.23	0.70-0.90	0.40-0.70	0.40-0.60	0.15-0.25	—
•8622	0.20-0.25	0.70-0.90	0.40-0.70	0.40-0.60	0.15-0.25	—
•8625	0.23-0.28	0.70-0.90	0.40-0.70	0.40-0.60	0.15-0.25	—
•8627	0.25-0.30	0.70-0.90	0.40-0.70	0.40-0.60	0.15-0.25	—
•8630	0.28-0.33	0.70-0.90	0.40-0.70	0.40-0.60	0.15-0.25	—
8632	0.30-0.35	0.70-0.90	0.40-0.70	0.40-0.60	0.15-0.25	—
8635	0.33-0.38	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25	—
•8637	0.35-0.40	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25	—
•8640	0.38-0.43	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25	—
8641	0.38-0.43	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25	S .040-.060
•8642	0.40-0.45	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25	—
•8645	0.43-0.48	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25	—
8647	0.45-0.50	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25	—
•8650 ^a	0.48-0.53	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25	—
8653	0.50-0.56	0.75-1.00	0.40-0.70	0.50-0.80	0.15-0.25	—
•8655	0.51-0.59	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25	—
•8660 ^a	0.55-0.65	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25	—
8715	0.13-0.18	0.70-0.90	0.40-0.70	0.40-0.60	0.20-0.30	—
8717	0.15-0.20	0.70-0.90	0.40-0.70	0.40-0.60	0.20-0.30	—
•8720	0.18-0.23	0.70-0.90	0.40-0.70	0.40-0.60	0.20-0.30	—
8735	0.33-0.38	0.75-1.00	0.40-0.70	0.40-0.60	0.20-0.30	—
•8740	0.38-0.43	0.75-1.00	0.40-0.70	0.40-0.60	0.20-0.30	—
8742	0.40-0.45	0.75-1.00	0.40-0.70	0.40-0.60	0.20-0.30	—
8745	0.43-0.48	0.75-1.00	0.40-0.70	0.40-0.60	0.20-0.30	—
8747	0.45-0.50	0.75-1.00	0.40-0.70	0.40-0.60	0.20-0.30	AISI only
8750	0.48-0.53	0.75-1.00	0.40-0.70	0.40-0.60	0.20-0.30	—
•8822	0.20-0.25	0.75-1.00	0.40-0.70	0.40-0.60	0.30-0.40	—
•9254 ^a	0.50-0.60	0.50-0.80	—	—	—	Si 1.20-1.60
•9255 ^a	0.51-0.59	0.70-0.95	—	—	—	Si 1.80-2.20
•9260	0.56-0.64	0.75-1.00	—	—	—	Si 1.80-2.20
•E9310 ^a	.08-0.13	0.45-0.65	3.00-3.50	1.00-1.40	.08-0.15	—
E9314	0.11-0.17	0.40-0.70	3.00-3.50	1.00-1.40	.08-0.15	AISI only
E9315	0.13-0.18	0.45-0.65	3.00-3.50	1.00-1.40	.08-0.15	—
E9317	0.15-0.20	0.45-0.65	3.00-3.50	1.00-1.40	.08-0.15	—
9747	0.45-0.50	0.50-0.80	0.40-0.70	0.10-0.25	0.15-0.25	—

^a Listed in "1978 SAE Handbook," but not by AISI in 1977: Steel Products Manual, "Alloy, Carbon and High Strength Low Alloy Steels: Semifinished for Forging; Hot Rolled Bars, Cold Finished Bars; Hot Rolled Deformed and Plain Concrete Reinforcing Bars."

Table I (continued)
ALLOY STEELS
Ladle Chemical Ranges and Limits
Bars, Billets, Blooms and Slabs

AISI or SAE No.	Composition, %					Others and Remarks
	C	Mn	Ni	Cr	Mo	
9763	0.60-0.67	0.50-0.80	0.40-0.70	0.10-0.25	0.15-0.25	—
9840	0.38-0.43	0.70-0.90	0.85-1.15	0.70-0.90	0.20-0.30	—
9845	0.43-0.48	0.70-0.90	0.85-1.15	0.70-0.90	0.20-0.30	—
9850	0.48-0.53	0.70-0.90	0.85-1.15	0.70-0.90	0.20-0.30	—
EX-10 ^a	0.19-0.24	0.95-1.25	0.20-0.40	0.25-0.40	.05-0.10	—
EX-30 ^a	0.13-0.18	0.70-0.90	0.70-1.00	0.45-0.65	0.45-0.60	—
EX-31 ^a	0.15-0.20	0.70-0.90	0.70-1.00	0.45-0.65	0.45-0.60	—
EX-32 ^a	0.18-0.23	0.70-0.90	0.70-1.00	0.45-0.65	0.45-0.60	—
EX-33 ^a	0.17-0.24	0.85-1.25	0.20 min	0.20 min	.05 min	—
EX-55 ^a	0.15-0.20	0.70-1.00	1.65-2.00	0.45-0.65	0.65-0.80	—
EX-56 ^a	.08-0.13	0.70-1.00	1.65-2.00	0.45-0.65	0.65-0.80	—

^a SAE Temporary Steel Number.

Table II
BORON ALLOY STEELS
Ladle Chemical Ranges and Limits
Bars, Billets, Blooms and Slabs

AISI or SAE No.	Composition, %				
	C	Mn	Ni	Cr	Mo
46B12	0.10-0.15	0.45-0.65	1.65-2.00	—	0.20-0.30
•50B40 ^a	0.38-0.43	0.75-1.00	—	0.40-0.60	—
•50B44	0.43-0.48	0.75-1.00	—	0.40-0.60	—
•50B46	0.44-0.49	0.75-1.00	—	0.20-0.35	—
•50B50	0.48-0.53	0.75-1.00	—	0.40-0.60	—
•50B60	0.56-0.64	0.75-1.00	—	0.40-0.60	—
•51B60	0.56-0.64	0.75-1.00	—	0.70-0.90	—
•81B45	0.43-0.48	0.75-1.00	0.20-0.40	0.35-0.55	.08-0.15
•86B45 ^a	0.43-0.48	0.75-1.00	0.40-0.70	0.40-0.60	0.15-0.25
•94B15 ^a	0.13-0.18	0.75-1.00	0.30-0.60	0.30-0.50	.08-0.15
•94B17	0.15-0.20	0.75-1.00	0.30-0.60	0.30-0.50	.08-0.15
•94B30	0.28-0.33	0.75-1.00	0.30-0.60	0.30-0.50	.08-0.15
94B40	0.38-0.43	0.75-1.00	0.30-0.60	0.30-0.50	.08-0.15

^a Listed in "1978 SAE Handbook," but not by AISI in 1977: Steel Products Manual, "Alloy, Carbon and High Strength Low Alloy Steels: Semifinished for Forging; Hot Rolled Bars, Cold Finished Bars; Hot Rolled Deformed and Plain Concrete Reinforcing Bars."

Table III
H - STEELS
Ladle Chemical Ranges and Limits
Bars, Billets, Blooms and Slabs

AISI or SAE No.	Composition, %					
	C	Mn	Ni	Cr	Mo	Others and Remarks
•1330H	0.27-0.33	1.45-2.05	—	—	—	—
•1335H	0.32-0.38	1.45-2.05	—	—	—	—
•1340H	0.37-0.44	1.45-2.05	—	—	—	—
•1345H	0.42-0.49	1.45-2.05	—	—	—	—
2330H	0.27-0.34	0.55-0.85	3.20-3.80	—	—	—
2512H	.08-0.15	0.35-0.65	4.70-5.30	—	—	—
2515H	0.12-0.18	0.30-0.70	4.70-5.30	—	—	—
2517H	0.14-0.20	0.30-0.70	4.70-5.30	—	—	—
3120H	0.17-0.23	0.50-0.90	1.00-1.45	0.45-0.85	—	—
3130H	0.27-0.33	0.50-0.90	1.00-1.45	0.45-0.85	—	—
3135H	0.32-0.38	0.50-0.90	1.00-1.45	0.45-0.85	—	—
3140H	0.37-0.44	0.60-1.00	1.00-1.45	0.45-0.85	—	—
3310H	.07-0.13	0.30-0.70	3.20-3.80	1.30-1.80	—	—
3316H	0.13-0.19	0.30-0.70	3.20-3.80	1.30-1.80	—	—
•4027H	0.24-0.30	0.60-1.00	—	—	0.20-0.30	—
•4028H	0.24-0.30	0.60-1.00	—	—	0.20-0.30	S .035-.050
•4032H	0.29-0.35	0.60-1.00	—	—	0.20-0.30	—
•4037H	0.34-0.41	0.60-1.00	—	—	0.20-0.30	—
•4042H	0.39-0.46	0.60-1.00	—	—	0.20-0.30	—
•4047H	0.44-0.51	0.60-1.00	—	—	0.20-0.30	—
•4118H	0.17-0.23	0.60-1.00	—	0.30-0.70	.08-0.15	—
•4130H	0.27-0.33	0.30-0.70	—	0.75-1.20	0.15-0.25	—
•4135H	0.32-0.38	0.60-1.00	—	0.75-1.20	0.15-0.25	—
•4137H	0.34-0.41	0.60-1.00	—	0.75-1.20	0.15-0.25	—
•4140H	0.37-0.44	0.65-1.10	—	0.75-1.20	0.15-0.25	—
•4142H	0.39-0.46	0.65-1.10	—	0.75-1.20	0.15-0.25	—
•4145H	0.42-0.49	0.65-1.10	—	0.75-1.20	0.15-0.25	—
•4147H	0.44-0.51	0.65-1.10	—	0.75-1.20	0.15-0.25	—
•4150H	0.47-0.54	0.65-1.10	—	0.75-1.20	0.15-0.25	—
•4161H	0.55-0.65	0.65-1.10	—	0.65-0.95	0.25-0.35	—
4317H	0.14-0.21	0.40-0.70	1.50-2.00	0.35-0.65	0.20-0.30	—
•4320H	0.17-0.23	0.40-0.70	1.55-2.00	0.35-0.65	0.20-0.30	—
4337H	0.34-0.41	0.55-0.90	1.55-2.00	0.65-0.95	0.20-0.30	—
•4340H	0.37-0.44	0.55-0.90	1.55-2.00	0.65-0.95	0.20-0.30	—
•E4340H	0.37-0.44	0.60-0.95	1.55-2.00	0.65-0.95	0.20-0.30	—
•4419H ^a	0.17-0.23	0.35-0.75	—	—	0.45-0.60	—
•4620H	0.17-0.23	0.35-0.75	1.55-2.00	—	0.20-0.30	—
X4620H	0.17-0.23	0.40-0.80	1.55-2.00	—	0.20-0.30	—
•4621H	0.17-0.23	0.60-1.00	1.55-2.00	—	0.20-0.30	—
4640H	0.37-0.44	0.50-0.90	1.55-2.00	—	0.20-0.30	—

^a Listed in "1978 SAE Handbook," but not by AISI in 1977: Steel Products Manual, "Alloy, Carbon and High Strength Low Alloy Steels: Semifinished for Forging; Hot Rolled Bars, Cold Finished Bars; Hot Rolled Deformed and Plain Concrete Reinforcing Bars."

Table III (continued)

H-STEELS
Ladle Chemical Ranges and Limits
Bars, Billets, Blooms and Slabs

AISI or SAE No.	Composition, %					Others and Remarks
	C	Mn	Ni	Cr	Mo	
•4626H	0.23-0.29	0.40-0.70	0.65-1.05	—	0.15-0.25	AISI only
•4718H ^a	0.15-0.21	0.60-0.95	0.85-1.25	0.30-0.60	0.30-0.40	—
•4720H	0.17-0.23	0.45-0.75	0.85-1.25	0.30-0.60	0.15-0.25	—
4812H	0.09-0.15	0.30-0.70	3.20-3.80	—	0.20-0.30	—
•4815H	0.12-0.18	0.30-0.70	3.20-3.80	—	0.20-0.30	—
•4817H	0.14-0.20	0.30-0.70	3.20-3.80	—	0.20-0.30	—
•4820H	0.17-0.23	0.40-0.80	3.20-3.80	—	0.20-0.30	—
•5046H	0.43-0.50	0.65-1.10	—	0.13-0.43	—	—
•5120H	0.17-0.23	0.60-1.00	—	0.60-1.00	—	—
•5130H	0.27-0.33	0.60-1.00	—	0.75-1.20	—	—
•5132H	0.29-0.35	0.50-0.90	—	0.65-1.10	—	—
•5135H	0.32-0.38	0.50-0.90	—	0.70-1.15	—	—
•5140H	0.37-0.44	0.60-1.00	—	0.60-1.00	—	—
•5145H	0.42-0.49	0.60-1.00	—	0.60-1.00	—	—
•5147H ^a	0.45-0.52	0.60-1.05	—	0.80-1.25	—	—
•5150H	0.47-0.54	0.60-1.00	—	0.60-1.00	—	—
•5155H	0.50-0.60	0.65-1.10	—	0.60-1.00	—	—
•5160H	0.55-0.65	0.65-1.10	—	0.60-1.00	—	—
•6118H	0.15-0.21	0.40-0.80	—	0.40-0.80	—	V 0.10-0.15
•6150H	0.47-0.54	0.60-1.00	—	0.75-1.20	—	V 0.15 min
•8617H	0.14-0.20	0.60-0.95	0.35-0.75	0.35-0.65	0.15-0.25	—
•8620H	0.17-0.23	0.60-0.95	0.35-0.75	0.35-0.65	0.15-0.25	—
•8622H	0.19-0.25	0.60-0.95	0.35-0.75	0.35-0.65	0.15-0.25	—
•8625H	0.22-0.28	0.60-0.95	0.35-0.75	0.35-0.65	0.15-0.25	—
•8627H	0.24-0.30	0.60-0.95	0.35-0.75	0.35-0.65	0.15-0.25	—
•8630H	0.27-0.33	0.60-0.95	0.35-0.75	0.35-0.65	0.15-0.25	—
8632H	0.30-0.37	0.60-0.95	0.35-0.75	0.35-0.65	0.15-0.25	—
8635H	0.32-0.38	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25	—
•8637H	0.34-0.41	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25	—
•8640H	0.37-0.44	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25	—
8641H	0.37-0.44	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25	S .040-.060
•8642H	0.39-0.46	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25	—
•8645H	0.42-0.49	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25	—
8647H	0.44-0.52	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25	—
•8650H ^a	0.47-0.54	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25	—
8653H	0.49-0.56	0.70-1.05	0.35-0.75	0.50-0.85	0.15-0.25	—
•8655H	0.50-0.60	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25	—
•8660H ^a	0.55-0.65	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25	—
•8720H	0.17-0.23	0.60-0.95	0.35-0.75	0.35-0.65	0.20-0.30	—
8735H	0.32-0.39	0.70-1.05	0.35-0.75	0.35-0.65	0.20-0.30	—

^a Listed in "1978 SAE Handbook," but not by AISI in 1977: Steel Products Manual, "Alloy, Carbon and High Strength Low Alloy Steels: Semifinished for Forging; Hot Rolled Bars, Cold Finished Bars; Hot Rolled Deformed and Plain Concrete Reinforcing Bars."

Table III (continued)

H-STEELS
Ladle Chemical Ranges and Limits
Bars, Billets, Blooms and Slabs

AISI or SAE No.	Composition, %					Others and Remarks
	C	Mn	Ni	Cr	Mo	
•8740H	0.37-0.44	0.70-1.05	0.35-0.75	0.35-0.65	0.20-0.30	—
8742H	0.39-0.46	0.70-1.05	0.35-0.75	0.35-0.65	0.20-0.30	—
8745H	0.42-0.50	0.70-1.05	0.35-0.75	0.35-0.65	0.20-0.30	—
8747H	0.44-0.52	0.70-1.05	0.35-0.75	0.35-0.65	0.20-0.30	—
8750H	0.47-0.54	0.70-1.05	0.35-0.75	0.35-0.65	0.20-0.30	—
•8822H	0.19-0.25	0.70-1.05	0.35-0.75	0.35-0.65	0.30-0.40	—
•9260H	0.55-0.65	0.65-1.10	—	—	—	Si 1.70-2.20
•9310H ^{a, b}	.07-0.13	0.40-0.70	2.95-3.55	1.00-1.45	.08-0.15	—
9437H	0.35-0.43	0.85-1.25	0.25-0.65	0.25-0.55	.08-0.15	—
9440H	0.37-0.45	0.85-1.25	0.25-0.65	0.25-0.55	.08-0.15	—
9442H	0.40-0.48	0.95-1.35	0.25-0.65	0.25-0.55	.08-0.15	—
9445H	0.42-0.50	0.95-1.35	0.25-0.65	0.25-0.55	.08-0.15	—
9840H	0.37-0.44	0.60-0.95	0.80-1.20	0.65-0.95	0.20-0.30	—
9850H	0.47-0.54	0.60-0.95	0.80-1.20	0.65-0.95	0.20-0.30	—

^a Listed in "1978 SAE Handbook," but not by AISI in 1977: Steel Products Manual, "Alloy, Carbon and High Strength Low Alloy Steels: Semifinished for Forging; Hot Rolled Bars, Cold Finished Bars; Hot Rolled Deformed and Plain Concrete Reinforcing Bars."

^b Electric furnace steel.

Table IV

BORON H-STEELS
Ladle Chemical Ranges and Limits
Bars, Billets, Blooms and Slabs

AISI or SAE No.	Composition, %				
	C	Mn	Ni	Cr	Mo
•50B40H	0.37-0.44	0.65-1.10	—	0.30-0.70	—
•50B44H	0.42-0.49	0.65-1.10	—	0.30-0.70	—
•50B46H	0.43-0.50	0.65-1.10	—	0.13-0.43	—
•50B50H	0.47-0.54	0.65-1.10	—	0.30-0.70	—
•50B60H	0.55-0.65	0.65-1.10	—	0.30-0.70	—
•51B60H	0.55-0.65	0.65-1.10	—	0.60-1.00	—
•81B45H	0.42-0.49	0.70-1.05	0.15-0.45	0.30-0.60	.08-0.15
•86B45H	0.42-0.49	0.70-1.05	0.35-0.75	0.35-0.65	0.15-0.25
•94B15H	0.12-0.18	0.70-1.05	0.25-0.65	0.25-0.55	.08-0.15
•94B17H	0.14-0.20	0.70-1.05	0.25-0.65	0.25-0.55	.08-0.15
•94B30H	0.27-0.33	0.70-1.05	0.25-0.65	0.25-0.55	.08-0.15
94B40H	0.37-0.44	0.70-1.05	0.25-0.65	0.25-0.55	.08-0.15

^a Listed in "1978 SAE Handbook," but not by AISI in 1977: Steel Products Manual, "Alloy, Carbon and High Strength Low Alloy Steels: Semifinished for Forging; Hot Rolled Bars, Cold Finished Bars; Hot Rolled Deformed and Plain Concrete Reinforcing Bars."