

STANDARD H STEELS

Chemical Composition Ranges

SAE No.	C	Mn	Cr	Ni	Mo	Other
1330 H	.27/.33	1.45/2.05	.....	.....	.....	.....
1335 H	.32/.38	1.45/2.05	.....	.....	.....	.....
1340 H	.37/.44	1.45/2.05	.....	.....	.....	.....
1345 H	.42/.49	1.45/2.05	.....	.....	.....	.....
4027 H	.24/.30	.60/1.00	.....	.....	.20/.30	.....
4028 H	.24/.30	.60/1.00	.....	.....	.20/.30	S .035/.050
4032 H	.29/.35	.60/1.00	.....	.....	.20/.30	.....
4037 H	.34/.41	.60/1.00	.....	.....	.20/.30	.....
4042 H	.39/.46	.60/1.00	.....	.....	.20/.30	.....
4047 H	.44/.51	.60/1.00	.....	.....	.20/.30	.....
4118 H	.17/.23	.60/1.00	.30/.70	.....	.08/.15	.....
4130 H	.27/.33	.30/.70	.75/1.20	.....	.15/.25	.....
4135 H	.32/.38	.60/1.00	.75/1.20	.....	.15/.25	.....
4137 H	.34/.41	.60/1.00	.75/1.20	.....	.15/.25	.....
4140 H	.37/.44	.65/1.10	.75/1.20	.....	.15/.25	.....
4142 H	.39/.46	.65/1.10	.75/1.20	.....	.15/.25	.....
4145 H	.42/.49	.65/1.10	.75/1.20	.....	.15/.25	.....
4147 H	.44/.51	.65/1.10	.75/1.20	.....	.15/.25	.....
4150 H	.47/.54	.65/1.10	.75/1.20	.....	.15/.25	.....
4161 H	.55/.65	.65/1.10	.65/.95	.....	.25/.35	.....
4320 H	.17/.23	.40/.70	.35/.65	1.55/2.00	.20/.30	.....
4340 H	.37/.44	.55/.90	.65/.95	1.55/2.00	.20/.30	.....
E4340 H	.37/.44	.60/.95	.65/.95	1.55/2.00	.20/.30	.....
4620 H	.17/.23	.35/.75	.....	1.55/2.00	.20/.30	.....
4621 H	.17/.23	.60/1.00	.....	1.55/2.00	.20/.30	Si .15/.35
4626	.23/.29	.40/.70	.....	.65/1.05	.15/.25	Si .15/.35
4718 H	.15/.21	.60/.95	.30/.60	.85/1.25	.30/.40	.....
4720 H	.17/.23	.45/.75	.30/.60	.85/1.25	.15/.25	.....
4815 H	.12/.18	.30/.70	.....	3.20/3.80	.20/.30	.....
4817 H	.14/.20	.30/.70	.....	3.20/3.80	.20/.30	.....
4820 H	.17/.23	.40/.80	.....	3.20/3.80	.20/.30	.....
50B40 H	.37/.44	.65/1.10	.30/.70	.....	.....	B .0005/.003
50B44 H	.42/.49	.65/1.10	.30/.70	.....	.....	B .0005/.003
5046 H	.43/.50	.65/1.10	.13/.43	.....	.....	.....
50B46 H	.43/.50	.65/1.10	.13/.43	.....	.....	B .0005/.003
50B50 H	.47/.54	.65/1.10	.30/.70	.....	.....	B .0005/.003
50B60 H	.55/.65	.65/1.10	.30/.70	.....	.....	B .0005/.003

STANDARD H STEELS – continued

SAE No.	C	Mn	Cr	Ni	Mo	Other
5120 H	.17/.23	.60/1.00	.60/1.00	.....	.....	.....
5130 H	.27/.33	.60/1.00	.75/1.20	.....	.....	.....
5132 H	.29/.35	.50/.90	.65/1.10	.....	.....	.....
5135 H	.32/.38	.50/.90	.70/1.15	.....	.....	.....
5140 H	.37/.44	.60/1.00	.60/1.00	.....	.....	.....
5147 H	.45/.52	.60/1.05	.80/1.25	.....	.....	.....
5150 H	.47/.54	.60/1.00	.60/1.00	.....	.....	.....
5155 H	.50/.60	.60/1.00	.60/1.00	.....	.....	.....
5160 H	.55/.65	.65/1.10	.60/1.00	.....	.....	.....
51B60 H	.55/.65	.65/1.10	.60/1.00	.....	.....	B .0005/.003
6118 H	.15/.21	.40/.80	.40/.80	.....	.....	V .10/.15
6150 H	.47/.54	.60/1.00	.75/1.20	.....	.....	.15 min.
81B45 H	.42/.49	.70/1.05	.30/.60	.15/.45	.08/.15	B .0005/.003
8617 H	.14/.20	.60/.95	.35/.65	.35/.75	.15/.25	.....
8620 H	.17/.23	.60/.95	.35/.65	.35/.75	.15/.25	.....
8622 H	.19/.25	.60/.95	.35/.65	.35/.75	.15/.25	.....
8625 H	.22/.28	.60/.95	.35/.65	.35/.75	.15/.25	.....
8627 H	.24/.30	.60/.95	.35/.65	.35/.75	.15/.25	.....
8630 H	.27/.33	.60/.95	.35/.65	.35/.75	.15/.25	.....
86B30 H	.27/.33	.60/.95	.35/.65	.35/.75	.15/.25	B .0005/.003
8637 H	.34/.41	.70/1.05	.35/.65	.35/.75	.15/.25	.....
8640 H	.37/.44	.70/1.05	.35/.65	.35/.75	.15/.25	.....
8642 H	.39/.46	.70/1.05	.35/.65	.35/.75	.15/.25	.....
8645 H	.42/.49	.70/1.05	.35/.65	.35/.75	.15/.25	.....
86B45 H	.42/.49	.70/1.05	.35/.65	.35/.75	.15/.25	B .0005/.003
8650 H	.47/.54	.70/1.05	.35/.65	.35/.75	.15/.25	.....
8655 H	.50/.60	.70/1.05	.35/.65	.35/.75	.15/.25	.....
8660 H	.55/.65	.70/1.05	.35/.65	.35/.75	.15/.25	.....
8720 H	.17/.23	.60/.95	.35/.65	.35/.75	.20/.30	.....
8740 H	.37/.44	.70/1.05	.35/.65	.35/.75	.20/.30	.....
8822 H	.19/.25	.70/1.05	.35/.65	.35/.75	.30/.40	.....
9259 H	.56/.64	.65/1.10	.45/.65	.....	.....	Si .70/1.20
9260 H	.55/.65	.65/1.10	.....	.....	.....	Si 1.70/2.20
9310 H	.07/.13	.40/.70	1.00/1.45	2.95/3.55	.08/.15	.....
94B15 H	.12/.18	.70/1.05	.25/.55	.25/.65	.08/.15	B .0005/.003
94B17 H	.14/.20	.70/1.05	.25/.55	.25/.65	.08/.15	B .0005/.003
94B30 H	.27/.33	.70/1.05	.25/.55	.25/.65	.08/.15	B .0005/.003

Unless specified:

Si = .15/.35, P = .030 max (SAE J1268), S = .040 max, Cu = .35 max, Ni = .25 max, Cr = .20 max, Mo = .06 max

STANDARD CARBON AND CARBON BORON H STEELS

Chemical Composition Ranges and Limits

SAE No.	C	Mn	P Max	S Max	Si
1038 H	.34/.43	.50/1.00	.030	.050	.15/.35
1045 H	.42/.51	.50/1.00	.030	.050	.15/.35
1522 H	.17/.25	1.00/1.50	.030	.050	.15/.35
1524 H	.18/.26	1.25/1.75	.030	.050	.15/.35
1526 H	.21/.30	1.00/1.50	.030	.050	.15/.35
1541 H	.35/.45	1.25/1.75	.030	.050	.15/.35
15B21 ⁽¹⁾	.17/.24	.70/1.20	.030	.050	.15/.35
15B28H	.25/.34	1.00/1.50	.030	.050	.15/.35
15B30H	.27/.35	.70/1.20	.030	.050	.15/.35
15B35H ⁽¹⁾	.31/.39	.70/1.20	.030	.050	.15/.35
15B37H ⁽¹⁾	.30/.39	1.00/1.50	.030	.050	.15/.35
15B41H ⁽¹⁾	.35/.45	1.25/1.75	.030	.050	.15/.35
15B48H ⁽¹⁾	.43/.53	1.00/1.50	.030	.050	.15/.35
15B62H ⁽¹⁾	.54/.67	1.00/1.50	.030	.050	.40/.60

For electric furnace steels P & S = .025 max and the prefix E is added.

⁽¹⁾ B = .0005/.003

RESTRICTED HARDENABILITY STEELS

Chemical Composition Ranges

SAE No.	C	Mn	Si	Ni	Cr	Mo
15B21RH ⁽¹⁾	.17/.22	.80/1.10	.15/.35	.....	.....	.....
15B35RH ⁽¹⁾	.33/.38	.80/1.10	.15/.35	.....	.....	.....
3310RH	.08/.13	.40/.60	.15/.35	3.25/3.75	1.40/1.75	.....
4027RH	.25/.30	.70/.90	.15/.35	.....	.....	.20/.30
4118RH	.18/.23	.70/.90	.15/.35	.....	.40/.60	.08/.15
4120RH	.18/.23	.90/1.20	.15/.35	.....	.40/.60	.13/.20
4130RH	.28/.33	.40/.60	.15/.35	.....	.80/1.10	.15/.25
4140RH	.38/.43	.75/1.00	.15/.35	.....	.80/1.10	.15/.25
4145RH	.43/.48	.75/1.00	.15/.35	.....	.80/1.10	.15/.25
4161RH	.56/.64	.75/1.00	.15/.35	.....	.70/.90	.25/.35
4320RH	.17/.22	.45/.65	.15/.35	1.65/2.00	.40/.60	.20/.30
4620RH	.17/.22	.45/.65	.15/.35	1.65/2.00	.....	.20/.30
4820RH	.18/.23	.50/.70	.15/.35	3.25/3.75	.....	.20/.30
50B40RH ⁽¹⁾	.38/.43	.75/1.00	.15/.35	.....	.40/.60	.....
5130RH	.28/.33	.70/.90	.15/.35	.....	.80/1.10	.....
5140RH	.38/.43	.70/.90	.15/.35	.....	.70/.90	.....
5160RH	.56/.64	.75/1.00	.15/.35	.....	.70/.90	.....
8620RH	.18/.23	.70/.90	.15/.35	.40/.70	.40/.60	.15/.25
8622RH	.20/.25	.70/.90	.15/.35	.40/.70	.40/.60	.15/.25
8720RH	.18/.23	.70/.90	.15/.35	.40/.70	.40/.60	.20/.30
8822RH	.20/.25	.75/1.00	.15/.35	.40/.70	.40/.60	.30/.40
9310RH	.08/.13	.45/.65	.15/.35	3.00/3.50	1.00/1.40	.08/.15

Unless specified: Cu = .35 max, Ni = .25 max, Cr = .20 max, Mo = .06 max

⁽¹⁾ B = .0005 / .003

FORMERLY STANDARD STEELS

Chemical Composition Ranges and Limits

SAE No.	C	Mn	P Max	S Max
1009	.15 max	.60 max	.040	.050
1033	.30/.36	.70/1.00	.040	.050
1034	.32/.38	.50/.80	.040	.050
1037	.32/.38	.70/1.00	.040	.050
1059	.55/.65	.50/.80	.040	.050
1062	.54/.65	.85/1.15	.040	.050
1064	.60/.70	.50/.80	.040	.050
1069	.65/.75	.40/.70	.040	.050
1075	.70/.80	.40/.70	.040	.050
1084	.80/.93	.60/.90	.040	.050
1085	.80/.93	.70/1.00	.040	.050
1086	.80/.94	.30/.50	.040	.050
1108	.08/.13	.50/.80	.040	.08/.13
1109	.08/.13	.60/.90	.040	.08/.13
1110	.08/.13	.30/.60	.040	.08/.13
1111	.13 max	.60/.90	.07/0.12	.10/.15
1112	.13 max	.70/1.00	.07/0.12	.16/.23
1113	.13 max	.70/1.00	.07/0.12	.24/.33
1114	.10/.16	1.00/1.30	.040	.08/.13
1115	.13/.18	.60/.90	.040	.08/.13
1116	.14/.20	1.10/1.40	.040	.16/.23
1119	.14/.20	1.00/1.30	.040	.24/.33
1120	.18/.23	.70/1.00	.040	.08/.13
1123	.20/.27	1.20/1.50	.040	.06/.09
1139	.35/.43	1.35/1.65	.040	.13/.20
1145	.42/.49	.70/1.00	.040	.04/.07
1152	.48/.55	.70/1.00	.040	.06/.09
1211	.13 max	.60/.90	.07/.12	.10/.15
1320	.18/.23	1.60/1.90	.040	.040
1345	.43/.48	1.60/1.90	.035	.040
1513	.10/.16	1.10/1.40	.030	.050
1518	.15/.21	1.10/1.40	.040	.050
1525	.23/.29	.80/1.10	.040	.050
1533	.30/.37	1.10/1.40	.040	.050
1534	.30/.37	1.20/1.50	.040	.050
1536	.30/.37	1.20/1.50	.040	.050
1544	.40/.47	.80/1.10	.040	.050
1545	.43/.50	.80/1.10	.040	.050
1546	.44/.52	1.00/1.30	.040	.050
1551	.45/.56	.85/1.15	.040	.050
1553	.48/.55	.80/1.10	.040	.050
1561	.55/.65	.75/1.05	.040	.050
1570	.65/.75	.80/1.10	.040	.050
1572	.65/.76	1.00/1.30	.040	.050
1580	.75/.88	.80/1.10	.040	.050
1590	.85/.98	.80/1.10	.040	.050

FORMERLY STANDARD STEELS – continued
Chemical Composition Ranges and Limits

SAE No.	C	Mn	Cr	Ni	Mo	Other
2317	.15/.20	.40/.60	.....	3.25/3.75	.....	.....
2330	.28/.33	.60/.80	.....	3.25/3.75	.....	.....
2340	.38/.43	.70/.90	.....	3.25/3.75	.....	.....
2345	.43/.48	.70/.90	.....	3.25/3.75	.....	.....
2512	.09/.14	.45/.60	.....	4.75/5.25	.....	.....
2515	.12/.17	.40/.60	.....	4.75/5.25	.....	.....
2517	.15/.20	.45/.60	.....	4.75/5.25	.....	.....
3115	.13/.18	.40/.60	.55/.75	1.10/1.40	.....	.....
3120	.17/.22	.60/.80	.55/.75	1.10/1.40	.....	.....
3130	.28/.33	.60/.80	.55/.75	1.10/1.40	.....	.....
3135	.33/.38	.60/.80	.55/.75	1.10/1.40	.....	.....
X3140	.38/.43	.70/.90	.70/.90	1.10/1.40	.....	.....
3140	.38/.43	.70/.90	.55/.75	1.10/1.40	.....	.....
3145	.43/.48	.70/.90	.70/.90	1.10/1.40	.....	.....
3150	.48/.53	.70/.90	.70/.90	1.10/1.40	.....	.....
3215	.10/.20	.30/.60	.90/1.25	1.50/2.00	.....	.....
3220	.15/.25	.30/.60	.90/1.25	1.50/2.00	.....	.....
3230	.25/.35	.30/.60	.90/1.25	1.50/2.00	.....	.....
3240	.35/.45	.30/.60	.90/1.25	1.50/2.00	.....	.....
3245	.40/.50	.30/.60	.90/1.25	1.50/2.00	.....	.....
3250	.45/.55	.30/.60	.90/1.25	1.50/2.00	.....	.....
3310	.08/.13	.45/.60	1.40/1.75	3.25/3.75	.....	.....
3311	.10/.16	.30/.50	1.30/1.60	3.25/3.75	.15 max	.....
3312	.08/.13	.45/.60	1.40/1.75	3.25/3.75	.....	.....
3316	.14/.19	.45/.60	1.40/1.75	3.25/3.75	.....	.....
3325	.20/.30	.30/.60	1.25/1.75	3.25/3.75	.....	.....
3335	.30/.40	.30/.60	1.25/1.75	3.25/3.75	.....	.....
3340	.35/.45	.30/.60	1.25/1.75	3.25/3.75	.....	.....
3415	.10/.20	.30/.60	.60/.95	2.75/3.25	.....	.....
3435	.30/.40	.30/.60	.60/.95	2.75/3.25	.....	.....
3450	.45/.55	.30/.60	.60/.95	2.75/3.25	.....	.....
4012	.09/.14	.75/1.00	.....	.....	.15/.25	.....
4024 ⁽¹⁾	.20/.25	.70/.90	.....	.....	.20/.30	.....
4028 ⁽¹⁾	.25/.30	.70/.90	.....	.....	.20/.30	.....
4032	.30/.35	.70/.90	.....	.....	.20/.30	.....
4042	.40/.45	.70/.90	.....	.....	.20/.30	.....
4053	.50/.56	.75/1.00	.....	.....	.20/.30	.....
4063	.60/.67	.75/1.00	.....	.....	.20/.30	.....
4068	.63/.70	.75/1.00	.....	.....	.20/.30	.....
4119	.17/.22	.70/.90	.40/.60	.....	.20/.30	.....
4121 ⁽²⁾	.18/.23	.75/1.00	.45/.65	.....	.20/.30	.....
4125	.23/.28	.70/.90	.40/.60	.....	.20/.30	.....
4131	.28/.33	.50/.70	.90/1.20	.....	.15/.25	.....
4135	.33/.38	.70/.90	.80/1.10	.....	.15/.25	.....
4147	.45/.50	.75/1.00	.80/1.10	.....	.15/.25	.....
4161	.56/.64	.75/1.00	.70/.90	.....	.25/.35	.....
4317	.15/.20	.45/.65	.40/.60	1.65/2.00	.20/.30	.....
4337	.35/.40	.60/.80	.70/.90	1.65/2.00	.20/.30	.....
4419	.18/.23	.45/.65	.....	.....	.45/.60	.....

⁽¹⁾ S = .035/.050

⁽²⁾ Formerly PS 24

FORMERLY STANDARD STEELS – continued
Chemical Composition Ranges and Limits

SAE No.	C	Mn	Cr	Ni	Mo	Other
4419H	.17/.23	.35/.75	.....	.....	.45/.60	.....
4422	.20/.25	.70/.90	.....	.....	.35/.45	.....
4427	.24/.29	.70/.90	.....	.....	.35/.45	.....
4608	.06/.11	.25/.45	.....	1.40/1.75	.15/.25	.....
46B12 ⁽³⁾	.10/.15	.45/.65	.....	1.65/2.00	.20/.30	.....
4615	.13/.18	.45/.65	.....	1.65/2.00	.20/.30	.....
4617	.15/.20	.45/.65	.....	1.65/2.00	.20/.30	.....
X4620	.18/.23	.50/.70	.....	1.65/2.00	.20/.30	.....
4621	.18/.23	.70/.90	.....	1.65/2.00	.20/.30	.....
4621H	.17/.23	.60/1.00	.....	1.55/2.00	.20/.30	.....
4626	.24/.29	.45/.65	.....	.70/1.00	.15/.25	.....
4640	.38/.43	.60/.80	.....	1.65/2.00	.20/.30	.....
4715 ⁽⁴⁾	.13/.18	.70/.90	.45/.65	.70/1.00	.45/.60	.....
4718	.16/.21	.70/.90	.35/.55	.90/1.20	.30/.40	.....
4720	.17/.22	.50/.70	.35/.55	.90/1.20	.15/.25	.....
4812	.10/.15	.40/.60	.....	3.25/3.75	.20/.30	.....
4815	.13/.18	.40/.60	.....	3.25/3.75	.20/.30	.....
4817	.15/.20	.40/.60	.....	3.25/3.75	.20/.30	.....
5015	.12/.17	.30/.50	.30/.50	.....	.....	.....
50B40 ⁽³⁾	.38/.43	.75/1.00	.40/.60	.....	.....	.....
50B44 ⁽³⁾	.43/.48	.75/1.00	.40/.60	.....	.....	.....
5045	.43/.48	.70/.90	.55/.75	.....	.....	.....
5046	.43/.48	.75/1.00	.20/.35	.....	.....	.....
50B50 ⁽³⁾	.48/.53	.75/1.00	.40/.60	.....	.....	.....
5060	.56/.64	.75/1.00	.40/.60	.....	.....	.....
50B60 ⁽³⁾	.56/.64	.75/1.00	.40/.60	.....	.....	.....
5115	.13/.18	.70/.90	.70/.90	.....	.....	.....
5117	.15/.20	.70/.90	.70/.90	.....	.....	.....
5135	.33/.38	.60/.80	.80/1.05	.....	.....	.....
5145	.43/.48	.70/.90	.70/.90	.....	.....	.....
5145H	.42/.49	.60/1.00	.60/1.00	.....	.....	.....
5147	.46/.51	.70/.95	.85/1.15	.....	.....	.....
5152	.48/.55	.70/.90	.90/1.20	.....	.....	.....
5155	.51/.59	.70/.90	.70/.90	.....	.....	.....
50100	.98/1.10	.25/.45	.40/.60	.....	.....	.....
V						
6115	.10/.20	.30/.60	.80/1.10	.....	.....	.15 min
6117	.15/.20	.70/.90	.70/.90	.....	.....	.10 min
6118	.16/.21	.50/.70	.50/.70	.....	.....	.10/.15
6120	.17/.22	.70/.90	.70/.90	.....	.....	.10 min
6125	.20/.30	.60/.90	.80/1.10	.....	.....	.15 min
6130	.25/.35	.60/.90	.80/1.10	.....	.....	.15 min
6135	.30/.40	.60/.90	.80/1.10	.....	.....	.15 min
6140	.35/.45	.60/.90	.80/1.10	.....	.....	.15 min
6145	.43/.48	.70/.90	.80/1.10	.....	.....	.15 min
6195	.90/1.05	.20/.45	.80/1.10	.....	.....	.15 min
W						
71360	.50/.70	.30 max	3.00/4.00	.....	.....	12.00/15.00
71660	.50/.70	.30 max	3.00/4.00	.....	.....	15.00/18.00
7260	.50/.70	.30 max	.50/1.00	.....	.....	1.50/2.00

⁽³⁾ B = .0005/.003

⁽⁴⁾ Formerly PS 30

FORMERLY STANDARD STEELS – continued
Chemical Composition Ranges and Limits

SAE No.	C	Mn	Cr	Ni	Mo	Other
8115	.13/.18	.70/.90	.30/.50	.20/.40	.08/.15	.....
81B45 ⁽³⁾	.43/.48	.75/1.00	.35/.55	.20/.40	.08/.15	.....
8625	.23/.28	.70/.90	.40/.60	.40/.70	.15/.25	.....
8627	.25/.30	.70/.90	.40/.60	.40/.70	.15/.25	.....
8632	.30/.35	.70/.90	.40/.60	.40/.70	.15/.25	.....
8635	.33/.38	.75/1.00	.40/.60	.40/.70	.15/.25	.....
8637	.38/.43	.75/1.00	.40/.60	.40/.70	.15/.25	.....
8641 ⁽⁵⁾	.38/.43	.75/1.00	.40/.60	.40/.70	.15/.25	.....
8642	.40/.45	.75/1.00	.40/.60	.40/.70	.15/.25	.....
86B45 ⁽³⁾	.43/.48	.75/1.00	.40/.60	.40/.70	.15/.25	.....
8647	.45/.50	.75/1.00	.40/.60	.40/.70	.15/.25	.....
8650	.48/.53	.75/1.00	.40/.60	.40/.70	.15/.25	.....
8653	.50/.56	.75/1.00	.50/.80	.40/.70	.15/.25	.....
8655	.51/.59	.75/1.00	.40/.60	.40/.70	.15/.25	.....
8660	.56/.64	.75/1.00	.40/.60	.40/.70	.15/.25	.....
8715	.13/.18	.70/.90	.40/.60	.40/.70	.20/.30	.....
8717	.15/.20	.70/.90	.40/.60	.40/.70	.20/.30	.....
8719	.18/.23	.60/.80	.40/.60	.40/.70	.20/.30	.....
8735	.33/.38	.75/1.00	.40/.60	.40/.70	.20/.30	.....
8740	.38/.43	.75/1.00	.40/.60	.40/.70	.20/.30	.....
8742	.40/.45	.75/1.00	.40/.60	.40/.70	.20/.30	.....
8745	.43/.48	.75/1.00	.40/.60	.40/.70	.20/.30	.....
8750	.48/.53	.75/1.00	.40/.60	.40/.70	.20/.30	.....
9250 ⁽⁶⁾	.45/.55	.60/.90	.....	.....	.....	.....
9254 ⁽⁷⁾	.51/.59	.60/.80	.60/.80	.....	.....	.....
9255 ⁽⁶⁾	.51/.59	.70/.95	.....	.....	.....	.....
9261 ⁽⁶⁾	.55/.65	.75/1.00	.10/.25	.....	.....	.....
9262 ⁽⁶⁾	.55/.65	.75/1.00	.25/.40	.....	.....	.....
9310	.08/.13	.45/.65	1.00/1.40	3.00/3.50	.08/.15	.....
9315	.13/.18	.45/.65	1.00/1.40	3.00/3.50	.08/.15	.....
9317	.15/.20	.45/.65	1.00/1.40	3.00/3.50	.08/.15	.....
94B15	.13/.18	.75/1.00	.30/.50	.30/.60	.08/.15	.....
94B17	.15/.20	.75/1.00	.30/.50	.30/.60	.08/.15	.....
94B30 ⁽³⁾	.28/.33	.75/1.00	.30/.50	.30/.60	.08/.15	.....
9437	.35/.40	.90/1.20	.30/.50	.30/.60	.08/.15	.....
9440	.38/.43	.90/1.20	.30/.50	.30/.60	.08/.15	.....
94B40 ⁽³⁾	.38/.43	.75/1.00	.30/.60	.30/.60	.08/.15	.....
9442	.40/.45	.90/1.20	.30/.50	.30/.60	.08/.15	.....
9445	.43/.48	.90/1.20	.30/.50	.30/.60	.08/.15	.....
9447	.45/.50	.90/1.20	.30/.50	.30/.60	.08/.15	.....
9747	.45/.50	.50/.80	.10/.25	.40/.70	.15/.25	.....
9763	.60/.67	.50/.80	.10/.25	.40/.70	.15/.25	.....
9840	.38/.43	.70/.90	.70/.90	.85/1.15	.20/.30	.....
9845	.43/.48	.70/.90	.70/.90	.85/1.15	.20/.30	.....
9850	.48/.53	.70/.90	.70/.90	.85/1.15	.20/.30	.....
V						
438V12 ⁽³⁾	.08/.13	.75/1.00	.40/.60	1.65/2.00	.20/.30	.03 min
438V14 ⁽³⁾	.10/.15	.45/.65	.40/.60	1.65/2.00	.08/.15	.03 min

⁽³⁾ B = .0005/.003

⁽⁵⁾ S = .04/.60

⁽⁶⁾ Si = 1.80/2.20

⁽⁷⁾ Si = 1.20/1.60