TABLE 1 CHEMICAL REQUIREMENTS
(Heat Analysis)

Diameter Thickness, or distance between Parallel Faces, in.(mm) Plates and Bars	Structural Shapes Groups[B]	Grade	Carbon, max,%	Maganese,[C] max,%	Phosphorus, max,%	Sulphur max,%	Silicon[D]	
							Plates to 1 1/2-in. (40-mm) Thick, Shapes to 426 lb/ft 634 kg/m), Sheet Pilling, Bars, Zees, and Rolled Tees[E]	Plates Over 1 1/2-in. (40-mm) Thick and Shapes Over 426 (634 kg/m)
							max, %	range, %
6 (150)	all	42 (290)	0.21	1.35[F]	0.04	0.05	0.40	0.15-0.40
4 (100)	all	50 (345)	0.23	1.35[F]	0.04	0.05	0.40	0.15-0.40
1 1/4 (32)	1,2,3	60 (415)	0.26	1.35[F]	0.04	0.05	0.40	[G]
> 1/2 - 1 1/4 (13-32)	2,3	65 (450)	0.23	1.65	0.04	0.05	0.40	[G]
≤ 1/2 (13)[H]	1[H]	65 (450)	0.26	1.35	0.04	0.05	0.40	[G]

[A] Copper when specified shall have a minimum content of 0.20 % by heat analysis (0.18 % product analysis).
[B] "See Specification A 6/A 6M.
[C] Manganese, minimum by heat analysis of 0.80 % (0.75 % product analysis) shall be required for all plates over % in. [10 mm] in thickness; a minimum of 0.50 % (0.45 % product analysis) shall be required for plates %in. [10 mm] and less in thickness, and for all other products. The manganese to carbon ratio shall not be less than 2 to 1.
[D] "Silicon content in excess of 0.40 % by heat analysis must be negotiated.
[E] Bars over 1^ in. (40 mm] in diameter, thickness, or distance between parallel faces, shall be made by a killed steel practice.
[F] For each reduction of 0.01 % below the specified carbon maximum, an increase of 0.06 % manganese above the specified maximum will be permitted up to a maximum of 1.50 %.
[G] The size and grade is not described in this specification.
[H] "An alternative chemical requirement with a maximum carbon of 0.21 % and a maximum manganese of 1.65 % is permissible with the balance of the elements as shown in Table 2.

TABLE 2 TENSILE REQUIREMENTS

Grade	Yield Point, min		Tensile Strength, min		Minimum Elongation, % [B,C,D]	
	ksi	(MPa)	ksi	(MPa)	in 8 in. (200 mm)	in 2 in. (50 mm)
42	42	(290)	60	(415)	20	24
50	50	(345)	65	(450)	18	21
60	60	(415)	75	(520)	16	18
65	65	(450)	80	(550)	15	17

[A] See specimen Orientation under the Tension Tests section of Specification W A6/A6M.
[B] Elongation not required to be determined for floor plate.
[C] For wide flange shapes over 426 lb/ft (634 kg/m) elongation in 2 in. (50 mm) of 19 % minimum applies.
[D] For plates wider than 24 in. (600 mm), the elongation requirement is reduced two percentage points for Grades 42 and 50 (290 and 345), and three percentage points for Grades 60 and 65 (415 and 450). See elongation requirement adjust-ments in the Tension Tests section of Specification A 6/A 6M.

HY-80 & HY-100

SPECIFICATION	HY-80, MIL-S 16216-K	HY-100, MIL-S 16216-K
Type of Steel	Alloy	Alloy
Requirements for Delivery	A20	A20
Yield Strength (Min. ksi)	80/100 to 3/4" incl.;	100/120 to 3/4" incl.;
(Yield Point if 3/4" designated YP)	80/99.5 over 3/4"	100/115 over 3/4"
Spec. Thickness (Max. in.)	8	6
Chemical Composition% Carbon (Max.)	.12/.18 to 1-1/4 incl.; 13/.18 over 1-1/4"	.12/.18 to 1-1/4 incl.; .14/.20 over 1-1/4"
Manganese	.10/.40	.10/.40
Phosphorus (Max.)	.015	.015
Sulphur (Max.)	.008	.008
Silicon	.15/.38. May be .08 Min. when vacuum carbon deoxidized	.15/.38. May be. 08 Min. when vacuum carbon deoxidized

SPECIFICATION	HY-80, MIL-S 16216-K	HY-100, MIL-S 16216-K
Chromium	1.00/1.80 to 1-1/4" incl.; 1.40/1.80 over 1-1/4 - 3" incl.; 1.50/1.90 over 3"	1.00/1.80 to 1-1/4" incl.; 1.40/1.80 over 1-1/4 - 3" incl.; 1.50/1.90 over 3"
Nickel	2.00/3.25 to 1-1/4" incl.; 2.50/3.50 over 1-1/4 - 3" incl.; 3.00/3.50 over 3"	2.25/3.50 to 1-1/4" incl.; 2.75/3.50 over 1-1/4 - 3" incl.; 3.00/3.50 over 3"
Molybdenum	.20/.60 to 1-1/4"; .35/.60 over 1-1/4 - 3" incl.; .50/.65 over 3"	.20/.60 to 1-1/4"; .35/.60 over 1-1/4 - 3" incl.; .50/.65 over 3"
Copper	.25	.25
Other Elements	.02 Ti .03 V	.02 Ti .03 V
Heat Treatment Required	Q&T	Q&T