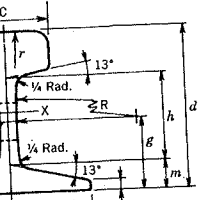
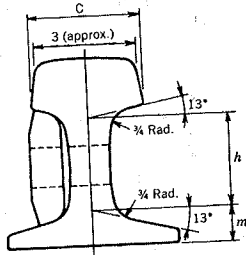


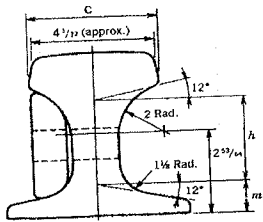
Figure 1-21
Crane Rails
Dimensions and Properties



CRANE RAILS



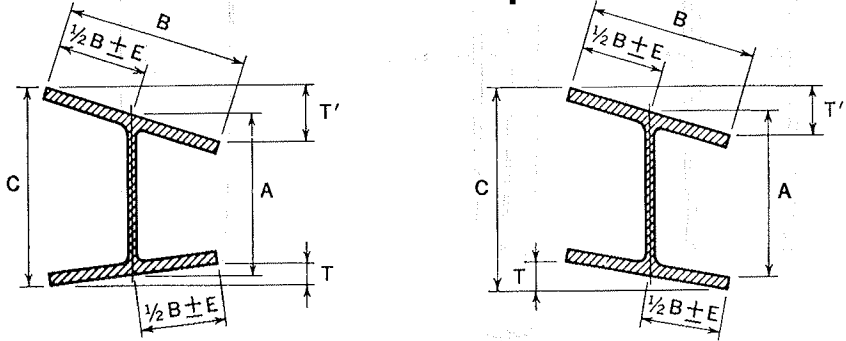
ASTM PROFILE 135



ASTM PROFILE 175

Nominal Depth, in.	Head		Web		Axis X-X					
	c	r	t	h	R	Area	I	S		y
								Head	Base	
12	1 11/16	12	2 1/64	1 23/32	12	3.00	4.10	2.55	—	—
14	1 7/8	12	2 5/64	1 55/64	12	3.94	6.54	3.59	3.89	1.68
16	2 1/8	12	7/16	2 1/16	12	4.90	10.1	5.10	—	1.88
18	2 3/8	12	3 1/64	2 17/64	12	5.93	14.6	6.64	7.12	2.05
20	2 7/16	12	3 3/64	2 15/32	12	6.81	19.7	8.19	8.87	2.22
22	2 1/2	12	3 5/64	2 5/8	12	7.86	26.4	10.1	11.1	2.38
24	2 9/16	12	9/16	2 3/4	12	8.33	30.1	11.1	12.2	2.47
26	2 3/4	12	9/16	2 5/64	12	9.84	44.0	14.6	16.1	2.73
28	2 1/2	12	1	2 7/16	3 1/2	10.3	29.8	10.7	13.5	2.21
30	3 7/16	14	1 1/4	2 13/16	12	13.3	50.8	17.3	18.1	2.81
32	4.3	Flat	1 1/4	2 3/4	Vert.	16.8	73.4	24.5	24.4	3.01
36	4 1/4	18	1 1/2	3 7/64	Vert.	17.1	70.5	23.4	23.6	2.98

Table 1-22
ASTM A6 Tolerances for W-Shapes
and HP-Shapes



Permissible Cross-Sectional Variations

Nominal Depth, in.	A Depth at Web Centerline, in.		B Flange Width, in.		T + T' Flanges Out of Square, Max. in.	E ^a Web Off Center, in.	C, Max. Depth at any Cross-Section over Theoretical Depth, in.
	Over	Under	Over	Under			
To 12, incl.	1/8	1/8	1/4	3/16	1/4	3/16	1/4
Over 12	1/8	1/8	1/4	3/16	5/16	3/16	1/4

Permissible Variations in Length

Nominal Depth ^b , in.	Variations from Specified Length for Lengths Given, in.			
	30 ft and Under		Over 30 ft	
	Over	Under	Over	Under
Beams 24 in. and under	3/8	3/8	3/8 plus 1/16 for each additional 5 ft or fraction thereof	3/8
Beams over 24 in. All columns	1/2	1/2	1/2 plus 1/16 for each additional 5 ft or fraction thereof	1/2

Mill Straightness Tolerances^c

Sizes	Length	Permissible Variation in Straightness, in.	
		Camber	Sweep
Flange width equal to or greater than 6 in.	All	1/8 in. × (total length, ft) / 10	
Flange width less than 6 in.	All	1/8 in. × (total length, ft) / 10	1/8 in. × (total length, ft) / 5
Certain sections with a flange width approx. equal to depth & specified on order as columns ^d	45 ft and under	1/8 in. × (total length, ft) / 10 with 3/8 in. max.	
	Over 45 ft	3/8 in. + [1/8 in. × (total length, ft - 45) / 10]	

Other Permissible Rolling Variations

Area and Weight	-2.5 to +3.0% from the theoretical cross-sectional area or the specified nominal weight ^e
Ends Out of Square	1/64 in., per in. of depth, or of flange width if it is greater than the depth

^a Variation of 5/16 in. max. for sections over 426 lb/ft.

^b For shapes specified in the order for use as bearing piles, the permitted variations are plus 5 in. and minus 0 in.

^c The tolerances herein are taken from ASTM A6 and apply to the straightness of members received from the rolling mill, measured as illustrated in Figure 1-1.

^d Applies only to W8×31 and heavier, W10×49 and heavier, W12×65 and heavier, W14×90 and heavier, HP8×36, HP10×57, HP12×74 and heavier, and HP14×102 and heavier. If other sections are specified on the order as columns, the tolerance will be subject to negotiation with the manufacturer.

^e For shapes with a nominal weight ≥ 100 lb/ft, the permitted variation is ±2.5% from the theoretical or specified amount.