

Purpose:

To provide crane bridge beam sizes for Harrington's manual and powered chain hoists used in conjunction with Harrington end trucks. Beams Sized for US or Metric Tons.

Scope:

- (a) Hoists – 1/8 to 10 Ton Capacities, US or Metric Tons.
- (b) Spans: 10 ft to 60 ft in 5 ft increments.
- (c) For indoor use only – WLO (Operating Wind Load) is zero.
- (d) Bridge beams for Harrington's cranes are single web girders using Standard Shape beams (S Beams), W Shape beams (W Beams), or Combination Sections (S Beam or W Beam with a Channel cap). S Beams, W Beams, and Channels as defined in 4.0 (a), and material limited to the ASTM A36 or ASTM A572 (for W-shapes) or A992 (for S-Shapes).

Beam Sizing and Calculation method:

The bridge beams are designed and selected base on the calculation method outlined in Harrington's internal use only document EDOC002, "Single Girder Bridge Beam Chart". EDOC002 methodology is based on:

- (a) ASTM A6/A6M, Standard Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use.
- (b) CMAA Specification #74, Revised 2010, Specifications for Top Running & Under Running Single Girder Electric Traveling Cranes Utilizing Under Running Trolley Hoist.
- (c) AISE Technical Report No. 6 September 1991, Specification For Electric Traveling Cranes For Steel Mill Service.

Single Girder Beam Chart – US or Metric Tons – A36 or A572/992 Steel							
Cap/Ton Span Ft(m)	1/2	1	2	3	5	8	10
10 (3.0)	S8x18.4	S8x18.4	S10x25.4	S12x31.8	S12x40.8	W18x71	W21x93
15 (4.6)	S8x18.4	S8x18.4	S10x25.4	S12x40.8	S15x50	W21x83	W18x106
20 (6.1)	S8x18.4	S10x25.4	S12x31.8	S15x42.9	S15x42.9 C10x15.3	W21x93	W18x119
25 (7.6)	S10x25.4	S10x25.4	S12x31.8 C10x15.3	S15x42.9 C10x15.3	S15x50 C10x25	W24x103	W24x103 C15x33.9
30 (9.1)	S10x25.4	S12x31.8	S15x42.9	S15x42.9 C10x15.3	W16x77	W24x103	W27x129
35 (10.7)	S12x31.8	S15x42.9	S15x42.9 C10x15.3	W16x67	W21x83	W27x114	W30x148
40 (12.2)	S15x42.9	S15x42.9 C10x15.3	W18x60	W18x71	W21x83	W27x129	W30x148
45 (13.7)	S15x42.9 C10x15.3	W16x57	W18x71	W18x76	W24x94	W27x129	W30x148
50 (15.2)	W16x40	W18x60	W18x76	W21x83	W27x102	W30x124 MC18x42.7	W30x148 MC18x42.7
55 (16.8)	W16x57	W16x67	W21x83	W24x94	W27x114	W30x132 MC18.42.7	W30x148 MC18x42.7
60 (18.3)	W16x67	W18x76	W21x93	W27x114	W30x116 MC18x42.7	W30x132 MC18x42.7	W33x169 MC18x42.7

- Notes: (1) For cranes using Harrington products (chain hoist, trolley, and end trucks).
 (2) For indoor cranes only – no wind load considered.
 (3) 1 US Ton = 2000 lb (907 kg); 1 Metric Ton = 2205 lb (1000 kg)

Appendix A: Alternate W-Shape Only Chart

Single Girder (Alternate W-Shape) Beam Chart US or Metric Tons – A36 or A572 Steel					
Cap/Ton Span Ft(m)	1/2	1	2	3	5
10 (3.0)	W8x13	W8x18	W8x28	W12x35	W10x60
15 (4.6)	W8x13	W8x21	W10x30	W12x45	W10x68
20 (6.1)	W8x15	W8x21	W10x39	W12x45	W10x68
25 (7.6)	W10x15	W10x22	W12x40	W12x50	W14x74
30 (9.1)	W10x22	W12x26	W14x38	W14x53	
35 (10.7)	W12x22	W14x26	W16x45		
40 (12.2)	W14x22	W14x34			
45 (13.7)	W16x26				

- Notes: (1) For cranes using Harrington products (chain hoist, trolley, and end trucks).
 (2) For indoor cranes only – no wind load considered.
 (3) 1 US Ton = 2000 lb (907 kg); 1 Metric Ton = 2205 lb (1000 kg)
 (4) This chart is a supplement, not a replacement, for the standard chart found on page 2 of this EDOC.