



## USE OF CHANNEL BEAM SPAN-LOAD CHARTS

**Attention:** The Span-Load Charts included herein were derived from computer-calculated data, and are intended as aids to preliminary sizing only, and must be interpreted using sound engineering judgment.

**INTRODUCTION:** The Channel Beam section is a cost-effective solution for short to medium span bridges. The top deck can be manufactured to accommodate traffic without adding cast-in-place concrete or additional wearing surfaces at the jobsite. Designers should be cautioned that with longer spans, provisions may need to be made for vertical alignment of the units at the jobsite prior to grouting the shear keys. This is due to the possibility of some differential camber between adjacent units.

Three widths of members are included in the span-load charts with depths ranging from 20 in. to 36 in. For each section presented, two AASHTO Loadings have been analyzed (HS20-44, and HS25-44). The graphical presentation also represents three levels of allowable tensile stresses under service loading.

Although the section was initially designed for bridge applications, it is also well suited for moderate to heavily loaded building applications, piers, pedestrian walkways, parking garages, and a multitude of other applications. Special widths and depths can be accommodated to comply with unique requirements. Contact CTC's Marketing Department for additional information.

### DESIGN CRITERIA:

1. Design: AASHTO's Standard Specifications for Highway Bridges, 16th Edition, 1996, the PCI Bridge Design Manual, and the WSDOT Bridge Design Manual.
2. Dead Load: Channel Beam + 60 psf.
3. Live Load: AASHTO Truck, Lane or Alternate Military Loading as applicable, including impact.
4. Loading Combinations: AASHTO Group I.
5. Live Load Distribution: AASHTO Section 3.23.4.3 for two traffic lanes.
6. Concrete: Channel  $f'_c = 7000$  psi,  $w_c = 156$  pcf.  
 $w_c = 160$  pcf used in weight calculations (including reinforcement).
7. Prestressing:  $f_{pi} = 202.5$  ksi ( $0.75 f_{pu}$ ),  $f_{pe} = 154.5$  ksi.
8. Allowable Stresses:
  - Service - Tension (Channel) =  $0, 3\sqrt{f'_c}$  or  $6\sqrt{f'_c}$
  - Compression (Channel) =  $0.4(f'_c)$
  - Release - Tension =  $7.5\sqrt{f'_{ci}}$
  - Compression =  $0.6(f'_{ci})$