PART 13 CRANE RUNWAY BEAMS AND MONORAIL BEAMS

13.1 General

Table 13-1 lists the combinations of universal beam and parallel flange sections, dimensions and properties of commonly used crane runway beams.

There is limited guidance given in AS 4100 and the crane code (AS 1418) on the limit state design of crane runway beams and monorail beams. However, Ref. [13.1] provides an excellent examination of these topics and considers the design criteria, design capacity tables and further background information on these structural items. Reference [13.2] discusses a number of design aspects of the design of crane runway girders and contains design example.

The section properties have been calculated from first principles and using References [13.3] and [13.4] in the case of the torsion constant, warping constant and monosymetry parameter.

13.2 References

13.2.1 General

[13.1] Woolcock, S.T., Kitipornchai, S. and Bradford, M.A., “Design of Portal Frame Buildings”, third edition, Australian Institute of Steel Construction, 1999.

[13.2] Gorenc, B.E., “Crane Runway Girders – Limit States Design”, Australian Steel Institute, Second Edition, 2003.

[13.3] Kitipornchai, S. and Trahair, N.S., “Buckling Properties of Monosymetric I-Beams”, ASCE, Journal of the Structural Division, Vol. 106 No. ST5, May 1980, pp 941–957.

[13.4] Canadian Institute of Steel Construction, “Torsional Section Properties of Steel Shapes”, August 2002.

13.2.2 Australian Standards

- AS 1418 Cranes (including hoists and winches), Standards Australia [numerous parts].

See Section 1.1.2 for further details on reference Standards