1. Introduction

Overhead travelling cranes and monorail hoists play a crucial role in the materials handling system. Crane runway girder and monorail beams are an integral part of the materials handling system and as such they must perform reliably and with minimum of down time. Serviceability and zero fatigue design are the two aspects requiring special attention.

The structural engineers responsible for the overall building frame design quite often also design crane runway girders. The procedure for designing heavy steel girders in building frameworks is similar, in most aspects, to the design of runway girders but the designer should be aware of additional design considerations specific to the crane operation and runway performance. Of main interest is the structural /mechanical interface between the crane itself and the runway The designer's aim should be is to ensure adequately long maintenance service life of runway girders, their adequate rigidity and smooth running of the crane.

Since the publication of DIN Standard 4132 in 1981 and Crane Runway Girders by B E Gorenc in1983 there has been a renewed interest in design of these mundane but important structures. Several publications appeared worldwide (Rowswell, ref. 72, IIW Report 1990, ref 51, Woolcock et al, ref. 88).

In response to a growing need for guidance on design of crane runway systems, the Standards Association of Australia has issued an Australian Standard for Crane Runways and Monorails, AS 1418.18 published in 2001. The author is not aware of any other overseas standard bodies that have published a comprehensive runway-specific standard. The standard covers both the working design and limit states design options.

This text, based generally on the standard and the rich literature on the subject, gives guidance, references and comment on various aspects of detail design and procedures to supplement the standard. Limit states design procedures are adhered to in this text because structural design is carried out in accordance with AS 4100.

Crane Runway Girders

Limit States Design

Second Edition 2003

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CRANE RUNWAY GIRDERS
LIMIT STATES DESIGN

NATIONAL LIBRARY OF AUSTRALIA
CARD NUMBER AND ISBN 0-909945-90-X

Published by: AUSTRALIAN STEEL INSTITUTE

FIRST EDITION 1983 (Working Stress)
SECOND EDITION 2003 (Limit States)

National Library of Australia Cataloguing-in-Publication entry:

Gorenc, B. E. (Branko Edward)
Crane runway girders.

2nd ed.
Bibliography.
ISBN 0 909945 90 X.

1. Cranes, derricks, etc. - Design and construction.
2. Girders - Design and construction. I. Australian Steel Institute. II. Title.

621.873

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Postal address - P.O. Box 6366, North Sydney, NSW 2059, Australia.
Website - www.steel.org.au

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