INTRODUCTION

This Specification has been developed by the Crane Manufacturers Association of America, Inc. (CMAA), an organization of leading electric overhead traveling crane manufacturers in the United States, for the purpose of promoting standardization and providing a basis for equipment selection. The use of this Specification should not limit the ingenuity of the individual manufacturer but should provide guidelines for technical procedure.

In addition to Specifications, the publication contains information which could be helpful to the purchasers and users of cranes and to the engineering and architectural professions. While much of this information must be of a general nature, it may be checked with individual manufacturers, and comparisons may be made, leading to the selection of the proper equipment.

These Specifications consist of eight Sections, as follows:

74–1 General Specifications
74–2 Crane Classification
74–3 Structural Design
74–4 Mechanical Design
74–5 Electrical Equipment
74–6 Inquiry Data Sheet and Speeds
74–7 Glossary
74–8 Index

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1st Printing: November 2015
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SUMMARY OF CHANGES SINCE THE 2010 REVISION OF SPECIFICATION #74

Added the “CMAA Specification Interpretation Request Procedure” on page 5.

Section 1.4.1.1.5..................................L_r defined for cantilevered runway Sections

Section 1.4.1.2.3.................................Maximum wheel load definition added for cantilevered Sections

Section 1.4 and Table 1.4.2-1........Revised to specifically address crane runways

Section 1.5.8.................................New Section for Runway Current Collectors

Section 1.5.9.................................New Section for Runway Grounding Conductor

Section 3.3.2.2.1..............................Revised Section for operational wind loading

Sections 3.3.2.5 & 3.7.3..................Reference to stress levels removed

Section 3.3.2.6.1..............................Added maximum value for lambda

Section 3.3.2.6.3..............................Added to Section to consider internal diaphragm stresses

Table 3.4.7-2A..............................Revised the Table to specify types of testing required for certain weld types

Figure 3.4.7-2B..............................Updated

Section 3.4.8.3..............................Revised design factor equations

Section 3.5.1..............................Revised Section for proportions for welded box girders.

Section 3.5.4.1..............................Revised to include errata issued for 2010 edition

Section 3.5.5.4..............................Revised to add lateral deflection limits

Section 3.9.3..............................New Section for gantry stability

Sections 4.2.2 & 4.2.3......................Revised gear quality classification Section

Section 5.2.8.1.3.3..........................Revised to include errata issued for 2004 edition

Section 5.4.7.4..............................New Section for Control System Markings

Section 5.5..............................Revised Section for Resistors

Section 5.6.16..............................New Section for Lightning Protection

Section 5.6.17..............................New Section for Below-the-Hook Devices

Sections 5.9.3.1-5.9.3.3....................New Sections for Power Circuit Limit Switches

Section 5.14..............................Revised Section for Inverters

Section 5.16..............................New Section for Collision Avoidance

Section 5.17..............................New Section for Weigh Scale Systems

Miscellaneous improvements:

* Commentary has been provided to newly added or revised Sections.

* Improved cross-referencing between main Sections.

* Improved formatting.
CMAA SPECIFICATION INTERPRETATION REQUEST PROCEDURE

A request for interpretation of CMAA's specifications is to be designated as an “Action Alert Inquiry.”

Only written inquiries about interpretations and the applicability of CMAA Specifications 70, 74 and 78 will be given a response by the CMAA Engineering and Safety Advocacy Workgroup. CMAA does not provide: design guidance, design critique, advice, comments on non-CMAA documents etc. Inquiries of this nature, if received, will be declined.

Send all written requests for interpretation of Specifications 70, 74 and 78, identifying the particular Specification and the Section numbers in question via email to cmaa-info@mhi.org or via Fax to 704-676-1199 to the attention of CMAA.

Interpretation requests must identify the sender by name, title, company name, address and telephone number and be on company letterhead. They must also be specific and concise.

The following is the CMAA procedure for processing and responding to interpretation requests.

1. CMAA assigns an Action Alert Inquiry number to each written inquiry.
2. CMAA immediately forwards the inquiry to the CMAA Engineering Vice President. Based on the nature and substance of the inquiry, the Vice President selects either a non-balloted or balloted response. Non-balloted responses generally will be selected for simple obvious replies and for inquiries to be declined. Inquiries for interpretation of CMAA Specifications 70, 74 and 78 will be balloted.
3. Response time for inquiries typically range from one week to one month, if balloted.

This Specification is accompanied by explanatory commentaries.

The commentaries in this Specification are not a part of the Specification and do not constitute a formal interpretation of the Specification (which can be obtained only through requests as indicated above). The commentaries, therefore, solely reflect the personal opinions of the editor or other contributors and do not necessarily represent the official position of CMAA or its technical committees.
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1.1 SCOPE

1.1.1 These Specifications shall be known as the Specifications for Top Running and Under Running Single Girder Electric Overhead Traveling Cranes Utilizing Under Running Trolley Hoist. CMAA Specifications No. 74 - Revised 2015.

1.1.2 The Specifications and information contained in this publication apply to top running and under running single girder electric overhead traveling cranes utilizing under running trolley hoist except patented track. It should be understood that the Specifications are general in nature and other Specifications may be agreed upon between the purchaser and the manufacturer to suit each specific installation. These Specifications do not cover equipment used to lift, lower or transport personnel suspended from the hoist rope system.

1.1.3 These Specifications outline, in Chapter 74-2, four different classes of crane service as a guide for determining the service requirements of the individual application. In many cases, there is no clear category of service in which a particular crane operation may fall, and the proper selection of a crane can be made only through a discussion of service requirements and the crane details with the crane manufacturer or other qualified persons.

1.1.4 Service conditions have an important influence on the life of the wearing parts of a crane such as wheels, gears, bearings, and electrical equipment, and must be considered in specifying a crane to assure maximum life and minimum maintenance.

1.1.5 In selecting overhead crane equipment, it is important that not only present but future operations be considered which may increase loading and service requirements and that equipment be selected which will satisfy future increased service conditions, thereby minimizing the possibility of overloading or placing in a duty classification higher than intended.

1.1.6 Parts of these Specifications refer to certain portions of other applicable Specifications, codes or standards. Where interpretations differ, CMAA recommends that these Specifications be used as the guideline. Mentioned in the text are publications of the following organizations:

ABMA  American Bearing Manufacturers Association
          2025 M Street, N.W., Suite 800
          Washington, DC 20036-3309

AGMA  American Gear Manufacturers Association
       1001 N. Fairfax Street, Suite 500
       Alexandria, VA 22314-1587

ANSI/AGMA 2001-D04 (R2010)  Fundamental Rating Factors and Calculation Methods for Involute Spur and Helical Gear Teeth
ANSI/AGMA 2015-1-A01 Accuracy Classification System – Tangential Measurements for Cylindrical Gears

AISC  American Institute of Steel Construction
       One East Wacker Drive, Suite 700
       Chicago, IL 60601-1802

AISC 9th Edition ASD

AIST  Association for Iron and Steel Technology
       186 Thorn Hill Rd
       Warrendale, PA 15086