



## CICA – Vic / Tas Branch Crane Safety Bulletin # 302 May 2022



**Greetings all. In today's bulletin we are going to talk about crane related Australian Standards.**

Australian Standards are important documents that provide industry with specifications, procedures and guidelines that aim to ensure products, services, and systems are safe, consistent, and reliable.

Australian Standards applicable to the crane industry for performing lifting operations, include the crane design standard AS1418 series, the crane safe use standard AS2550 series, and various rigging gear and lifting attachments standards.

### **AS 1418**

AS1418 standards provide uniform requirements within Australia for the design and construction of cranes and similar lifting appliances. This series of standards define the classification of cranes, material of cranes, crane loads and stability, design of crane and supporting structures, crane mechanisms, crane controls and crane inspection and testing.

There are eighteen standards in the AS1418 standard series. AS1418.1 outlines general requirements for all types of lifting equipment. The sub-standards AS1418.2 to AS1418.18 specify design requirements for different lifting equipment. For example, AS1418.5 Cranes hoists and winches – Mobile Cranes (EN13000-2010 MOD) set out requirements for the design of mobile cranes for reference by mobile crane designers, users and regulators.

The sub-standards are complementary to AS1418.1, but the requirements specified in the sub-standards take precedence over corresponding requirements in AS1418.1. For example, wind load calculation - the AS1418.1 standard refers to AS5222 for methods for calculating wind loads for in service and out of service conditions. AS 1418.3, Cranes hoists and winches – Bridge, gantry, portal container cranes and jib cranes refer to AS1418.1 for out-of-service wind loading calculation. In AS1418.9 Cranes hoists and winches – Vehicle hoists, vehicle hoists which are wholly sited within, and enclosed building or structure maybe designed without regard to wind loading, and if wind loading is required in the design, wind forces shall be calculated in accordance with AS 1170.2. AS 1170.2 is a comprehensive treatment of wind loads on buildings and AS 5222 presents a simplified method for determining wind forces specific to cranes. There are some differences between these two standards. If you are designing a bridge crane, then you need to refer to

AS5221 for out-of-service wind loading calculation and if you are designing a vehicle hoist, you need to refer to AS1170.2 for wind load calculation (if wind load calculation is needed).

AS 1418.1 was recently revised and the new version was published in 2021. The new version aligns the relevant sections of AS1418.1 with the latest International Standards to ensure Australian crane design standards align with international crane technology developments. Following the revision of the AS 1418.1 standard, a few of the sub-standards are currently under review, CICA will keep you updated with the review progress.

Many people think the AS1418 standards are more relevant for crane manufacturers as they specify requirements for crane design. But in reality, the modernization of the design standard indirectly improves the latest safety features and operational benefits to the operator. Plus, crane inspection and maintenance are often referred to the requirements in these standards (for example, testing of the crane rated capacity limiter in the inspections).

### **AS 2550**

AS 2550 provide uniform requirements and guidance for the safe use of cranes, hoists and winches. This series of standards focus on the safety of the crane operations. Key risk factors that should be considered in the lift planning process are listed in the AS 2550 standards, for example, the selection and safe use of the crane, travel and access requirements, the assembly and erection of the crane, ground conditions, safe operation of the crane and rigging equipment, and environmental factors.

AS 2550 standards also provide detailed guidance on the maintenance and inspection of cranes and hoists. Requirements and intervals for the pre-operational inspections, routine inspections, periodic third-party inspections (CraneSafe) and major inspections are specified in the standards. These inspections are important for monitoring the condition of the crane to ensure they are safe to operate.

Similar to the AS1418 standards, the AS2550 safe use standards also consist of a general standard and a series of sub-standards. The sub-standards are complementary to AS2550.1, but the requirements specified in the sub-standards take precedence over corresponding requirements in AS2550.1.



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### Other Standards

Many types of slings, rigging gear and lifting attachments have their own design and safe use standard. Rigging plays an important part in the lifting job. These standards are equally as important as the crane standards.

It is important for crane companies and crane crew members to have a general understanding of the information contained in the crane related standards, as these provide safe industry practice summarized by industry experts.

This bulletin is a summary of a list of crane related standards, in a future bulletin, we are going to share some tips on the formatting and key words in the standards i.e., "Shall" vs "Should", "Normative" vs "Informative", to help you have a better understanding of how to read and use these standards.

CICA members have access to crane related standards as part of their membership benefits. Below is a list of standards that can be downloaded from the SAI Global website through CICA membership.

- AS 1418 Crane, Hoist and Winches Design (part suite only)
- AS 2550 Crane, Hoist and Winches Safe Use (part suite only)
- AS 5221.1 Cranes - Design principles for loads and load combinations - General (ISO 8686-1:2012, MOD)
- AS 5233.1 Cranes - Graphic symbols – General
- AS 5236.1 Cranes - Limiting and indicating devices - General (ISO 10245-1:2008, MOD)
- AS 5246 Cranes - Classification - General (ISO 4301-1:2016, MOD)
- AS 1353.2-1998 Flat Synthetic-webbing Slings
- AS 1666.2-2009 Wire Rope Slings
- AS 2740-2001 Wedge Type Sockets
- AS 2759-2004 Steel Wire Rope
- AS 3850-2013 Tilt Up Concrete Construction
- AS 4497.2-1997 Flat Synthetic-round Slings
- AS 4991-2004 Lifting Devices
- AS 2741-2001 Shackles
- AS 3775.2-2014 Chain Slings for Lifting Purposes—Grade T(80) and V(100) Care and Use

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