

ICS 53.020.20

CCS J 80



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 6067.1-2010

Replacing GB/T 6067-1985

Safety rules for lifting appliances - Part 1: General

起重机械安全规程 第1部分：总则

Issued on: September 26, 2010

Implemented on: June 1, 2011

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;
Standardization Administration of the PRC**

Table of Contents

1	Scope
2	Normative references
3	Metal structures
4	Mechanisms and parts
5	Hydraulic systems
6	Electrical equipment
7	Control and operation systems
8	Electric protection
9	Safety protective devices
10	Marking, nameplates, safety signs, limiting sizes and clearances of lifting appliances
11	Management of the crane operation
12	Selection, responsibilities and minimum requirements of personnel
13	Safety
14	Selection of lifting appliances
15	Siting of cranes
16	Erection and dismantling
17	Operation of lifting appliances
18	Inspection, test, maintenance and repair
19	Safety assessment during in-service conditions of lifting appliances
A	Annex A (normative) Arrangement of safety protective devices on typical lifting appliances

Foreword

SAC/TC 227 is in charge of this English translation. In case of any doubt about the contents of English translation, the Chinese original shall be considered authoritative.

The GB/T 6067 consists of the following parts, under the general title Safety rules for lifting appliances: Part 1: General; Part 2: Mobile cranes; Part 3: Tower cranes; Part 4: Jib cranes; Part 5: Bridge and gantry cranes; Part 6: Cable cranes; Part 7: Series lifting equipment.

This part is Part 1 of the GB/T 6067. This part replaces the GB/T 6067-1985 Safety rules for lifting appliances in whole.

Compared with the GB/T 6067-1985, the main revisions are as follows: the safety

requirements for lifting appliances and their parts are elaborated in detail and some of the requirements concerning product technology in the former edition of standard are deleted; the safety requirements for the marking, nameplates, safety signs, limiting sizes and clearances of lifting appliances are added; the operation management requirements for lifting appliances are added; the selection, responsibilities and minimum requirements of personnel are added.

The requirements for the safety, selection, sitting, erection and dismantling, operation, inspection, test, maintenance and repair as well as the safety assessment during in-service conditions of lifting appliances are added; the requirements for "special attachments for load handling" and "simple lifting equipment for common use" are deleted; Table 1 to Table 5, Table 7 to Table 15 and Table 16 (partial content) are deleted; Table 17 is changed to Table A.1.

Annex A of this part is normative. This part was proposed by China Machinery Industry Federation. This part was prepared by SAC/TC 227 National Technical Committee on Lifting Appliances of Standardization Administration of China.

The issued edition of the standard replaced by this part is as follows: GB/T 6067-1985.

1 Scope

China's umbrella safety code for lifting appliances, the general part that the other six parts of GB/T 6067 build on. Cranes kill people in ways that are depressingly repeatable - a weld that was never inspected, a hook without a latch, a rope run onto a drum with two grips instead of five, a driver who left the controls with a load in the air, a jib swung into a live overhead line - and the answer this standard takes is to write one document that follows a crane from the drawing board to the scrapyard. It specifies the basic safety requirements for the design, manufacture, erection, refurbishment, maintenance, operation, discard and inspection of lifting appliances, and applies to bridge and gantry cranes, mobile cranes, tower cranes, jib cranes, cable cranes and series lifting equipment as general requirements, the appliance-specific rules being left to the other parts; it does not apply to floating cranes, deck cranes and manned lifting equipment, though it may be used as a reference for other appliances where no basic safety problem is involved. The nineteen clauses run from metal structures, mechanisms and parts, hydraulic systems, electrical equipment, control systems and electric protection, through the safety protective devices and the marking, nameplates, safety signs and clearances, to the management of crane operation, the duties and minimum requirements of the appointed person, driver, slinger, signaller, erector and maintenance personnel, and then to safety, selection, sitting, erection and dismantling, operation, inspection, test, maintenance and repair, and the safety assessment of an appliance already in service. A normative annex tabulates which safety protective devices - load limiters, lifting and travel limiters, buffers, wind-resistant and anti-skid devices, anti-collision devices and the rest - are required on each type of crane. The 2010 edition

replaced GB/T 6067-1985 in whole: it elaborated the safety requirements, dropped much of the product technology of the old edition, and added the whole operational and personnel side that the 1985 text had left out.

This part of GB/T 6067 specifies the basic safety requirements for the design, manufacture, erection, refurbishment, maintenance, operation, discard and inspection of lifting appliances.

This part is applicable to bridge and gantry cranes, mobile cranes, tower cranes, jib cranes, cable cranes and series lifting equipment as general requirements. The requirements for specific lifting appliances are provided in other parts of GB/T 6067.

This part is not applicable to floating cranes, deck cranes and manned lifting equipment. If no basic safety problems are involved, this part may be used as reference for other lifting appliances.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of GB/T 6067. For dated references, subsequent amendments (excluding corrections), or revisions, of any of these publications do not apply to this part of GB/T 6067. However parties to agreements based on this part of GB/T 6067 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

GB 2893 Safety colors; GB/T 3323 Radiographic examination of fusion welded joints in metallic materials; GB/T 3811-2008 Design rules for cranes; GB/T 4842 Argon; GB/T 5117 Carbon steel covered electrodes; GB/T 5118 Low alloy steel covered electrodes.

GB 5226.2-2002 Safety of machinery - Electrical equipment of machines - Part 32: Requirements for hoisting machines; GB/T 5293 Carbon steel electrodes and fluxes for submerged arc welding; GB/T 5905 Cranes - Test code and procedures; GB/T 5972 Cranes - Wire ropes - Care, maintenance, installation, examination and discard; GB/T 8110 Welding electrodes and rods for gas shielding arc welding of carbon and low alloy steel; GB 8918 Steel wire ropes for important purposes.

GB/T 10051.1, GB/T 10051.2 and GB/T 10051.3 Lifting hooks - Mechanical properties, lifting capacities, stresses and materials, Technical conditions of shank hook, and Inspection of shank hook in service; GB/T 12470 Low-alloy steel electrodes and fluxes for submerged arc welding; GB 15052 Cranes - Safety signs and hazard pictorials - General principles.

GB/T 17908 Cranes and lifting appliances - Technical characteristics and acceptance documents; GB/T 17909.1 Cranes - Crane driving manual - Part 1: General; GB/T 18453

Cranes - Maintenance manual - Part 1: General; GB/T 18875 Cranes - Spare parts manual; GB/T 19418 Arc-welded joints in steel - Guidance on quality levels for imperfections.

GB/T 20303.1 Cranes - Cabins - Part 1: General; GB/T 20652 Chain slings of welded construction - Grades M (4), S (6) and T (8); GB/T 20947 Short-link chain for lifting purposes - Grade T (Types T, DAT and DT), fine-tolerance hoist chain; GB/T 25196.1 Cranes - Condition monitoring - Part 1: General.

GB 50054 Code for design of low voltage electrical installations; GB 50058 Electrical installations design code for explosive atmospheres and fire hazard; HG/T 2537 Carbon dioxide for welding.

JB/T 6061 Non-destructive testing - Magnetic particle testing of welds; JB/T 6062 Non-destructive testing - Penetrant testing of welds; JB/T 10559 Non-destructive testing of lifting appliances - Ultrasonic testing of steel welds; JGJ 81 Technical specification for welding of steel structure of building; JGJ 82 Code for design, construction and acceptance of high strength bolts for steel structure.

3 Metal structures

3.1 General. 3.1.1 In design of the metal structures of lifting appliances, materials, structure types and construction measures shall be selected appropriately to meet the requirements on strength (including fatigue strength), stability, rigidity, safety during the transport, erection and operation process, as well as the requirements on fire resistance and corrosion protection. 3.1.2 In the design documents of metal structure, the grade of steel and type of connecting materials shall be specified; for important load bearing members, the mechanical property, chemical composition and other important properties of steel shall also be specified. Moreover, the required weld type and weld quality level shall be stated.

3.2 Materials. The steel for load-bearing structural members of lifting appliances shall be selected according to the requirements of 5.3 in GB/T 3811-2008.

3.3 Welding requirements for structural members. Manufacturers or erection and construction companies of metal structures shall formulate their own specification for welding of steel structures according to JGJ 81 or relevant standards, and shall carry out welding procedure qualification on the combination condition of various first-adopted parameters. The covered electrode model for manual welding shall be in compliance with mechanical properties of the base metal and shall meet GB/T 5117 or GB/T 5118; the welding wire shall meet GB/T 8110 or GB/T 5293; the argon for gas shielded arc welding shall meet GB/T 4842 with the purity no lower than 99.95 %, and the carbon dioxide in use shall meet HG/T 2537.

The weld quality levels of fully-penetrated melt welding joints shall meet the level requirements of Level-1, Level-2 and Level-3 in JB/T 10559. 100 % of level-1 welds shall be tested; where ultrasonic testing is adopted the qualification level shall reach the acceptance