



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

GB/T 20867-2007

**Robotics - Application specification for safety requirements -
Part 1: Industrial robot
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required.

This document is Part 1 of GB/T 20867 "Robot Safety Requirements Application Specification". GB/T 20867 has been published as follows part.

-- Part 1: Industrial robots.

This document replaces GB/T 20867-2007 "Industrial Robot Safety Implementation Code". Compared with GB/T 20867-2007, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- Changed the scope (see Chapter 1, Chapter 1 of the 2007 edition);
- Added "Terms and Definitions" (see Chapter 3);
- Changed "Safety Analysis" to "Hazard Identification and Risk Assessment" (see Chapter 4, Chapter 3 of the 2007 edition);
- Deleted "Basic Design Requirements" (Chapter 4 of the 2007 edition);
- Changed "robot design and manufacturing" to "design requirements and protective

measures" (see Chapter 5, Chapter 5 of the 2007 edition);

--Deleted "Safety Protection and Design of Robotic Systems" (Chapter 10 of the 2007 edition);

-- Changed "Installation, commissioning and functional testing" (see Chapter 6, Chapter 8 of the 2007 edition);

--Added "Programming" (see Chapter 7);

-- Changed "Use and Maintenance" (see Chapter 8, Chapter 7 of the 2007 edition);

-- Changed "Information for Use" (see Chapter 9, Chapter 9 and Chapter 10 of the 2007 edition);

--Added "Robot Risk Assessment Examples" (see Appendix A);

--Added "Typical Industrial Robot Hazard List" (see Appendix B).

Introduction

This document is a supporting document for GB 11291.1-2011. Its purpose is to increase the operability of GB 11291.1-2011 and facilitate engineering Technicians, managers and users use and implement safety standards more accurately and comprehensively.

GB/T 20867 "Robot Safety Requirements Application Specification" is planned to consist of two parts.

--Part 1: Industrial robots. The purpose is to increase the operability of GB 11291.1-2011.

-- Part 2: Industrial robot systems and integration. The purpose is to increase the operability of GB 11291.2-2013.

Robot safety requirements application specifications Part 1: Industrial Robots

1 Scope

This document specifies the steps and details for the application and implementation of the industrial robot safety standard GB 11291.1-2011.

This document applies to the design, production, sales, management and use of industrial robots (hereinafter referred to as "robots").

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date

applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 5226.1 Electrical safety of machinery Electrical equipment of machinery Part 1: General technical requirements GB 11291.1-2011 Safety requirements for robots for industrial environments Part 1: Robots GB/T 12265 Mechanical safety Minimum distance to prevent human body parts from being squeezed GB/T 12644 Industrial robot characteristics GB/T 12668.502-2013 Speed-adjustable electrical drive systems Part 5-2. Safety requirements Function GB/T 15706-2012 General principles for safety design of machinery - Risk assessment and risk reduction GB/T 16855.1-2018 Safety-related components of mechanical control systems Part 1: General principles for design GB/T 17799.2 General standard for electromagnetic compatibility Part 2: Immunity standard for industrial environments GB/T 17799.4 General standard for electromagnetic compatibility Part 4: Emissions in industrial environments GB 28526 Electrical safety of machinery Functional safety of safety-related electrical, electronic and programmable electronic control systems GB/T 36008-2018 Robots and robotic equipment Collaborative robots GB/T 42598 General rules for drafting safety instructions for machinery

3 Terms and definitions

The terms and definitions defined in GB 11291.1-2011 and the following apply to this document.

risk assessment

The entire process includes risk analysis and risk assessment.

[Source: GB/T 15706-2012, 3.17] 3.2 collaborative operation A state in which a specially designed robot works directly with humans in a specified workspace.

[Source: GB 11291.1-2011, 3.4] 3.3 safe space A space defined by perimeter security guards.