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

GB 11291.2-2013

Replacing GB 11291-1997

**Robots and robotic devices -- Safety requirements for industrial
robots -- Part 2: Robot systems and integration**

机器人与机器人装备 工业机器人的安全要求 第2部分：机器人系统与集成

(English Translation)

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Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Hazard identification and risk assessment	4
4.1 General	4
4.2 Layout Design	4
4.3 Risk Assessment	5
4.4 Hazard Identification	6
4.5 to eliminate the danger and risk reduction	7
5 safety requirements and protective measures	7
5.1 General	7
5.2 associated with the safety control system performance (hardware/software)	7
5.3 Design and Installation	8
5.4 robot movement restrictions	11

Foreword

All technical content in this section is mandatory.

GB 11291 "Safety requirements for robots and robotic equipment Industrial robots" is divided into two parts.

--- Part 1. Robot;

--- Part 2. Robot systems and integration.

This is Part 2 GB 11291's.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the translation method identical with the international standard ISO 10218-2:2011 "robot industrial robots and robotic equipment safety

Full requirements - Part 2. Robot systems and integration "(in English).

Consistency correspondence between this part of international documents and normative references of our files are as follows.

GB/T 3766-2001 Hydraulic System General technical conditions (ISO 4413:1998, EQV)

GB 5226.1-2008 Safety of machinery electrical equipment Part 1. General requirements (IEC 60204-1.2005, IDT)

GB/T 7932-2003 Pneumatic system General technical conditions (ISO 4414.1998, IDT)

GB/T 8196-2003 mechanical safety devices fixed and movable guards design and manufacture of general requirements (ISO

14120.2002, MOD)

GB 11291.1-2011 industrial environments - Safety requirements - Part 1 robot. Robot (ISO 10218-1.2006, IDT)

GB/T 12644-2001 industrial robot of characteristics (ISO 9946.1999, EQV)

GB/T 15706-2012 Safety of machinery - General principles for design risk assessment and risk reduction (ISO 12100.2010, IDT)

GB 16655-2008 Safety of machinery - Integrated manufacturing systems Basic requirements (ISO 11161.2007, IDT)

GB 16754-2008 Safety of machinery - Emergency stop design principles (ISO 13850.2006, IDT)

GB/T 16855.1-2008 Safety of machinery - Safety-related control system components - Part 1. General principles for design (ISO 13849-1.

2006, IDT)

GB/T 17454 (all parts), Safety of machinery - Pressure sensitive protective devices [ISO 13856 (all parts)]

GB 17888 (all parts), Safety of machinery fixed facilities [ISO 14122 (all parts)]

GB/T 18831-2010 mechanical interlock design belt guard and selection principles (ISO 14119.1998,

MOD)

GB/T 19436.1-2004 Safety of machinery electrically sensitive protective equipment - Part 1. General requirements and tests (IEC 61496-1.

1997, IDT)

GB/T 19670-2005 Safety of machinery - Prevention of unexpected start (ISO 14118.2000, MOD)

GB/T 19876-2012 Safety of machinery and parts of the body close to the speed of the positioning of protective equipment (ISO 13855.2010,

IDT)

GB 23821-2009 Safety of machinery - Safety distances to prevent danger zones being reached on the lower limbs (ISO 13857:2008, IDT)

GB 28526-2012 machinery safety-related electrical safety safety function electrical, electronic and programmable electronic control systems (IEC

62061:2005, IDT)

This part of the technical content and composition structure and ISO 10218-2:2011 "Safety for a robot equipped with a robot industrial robot

Seeking Part 2. Robot systems and integration "(in English) is consistent only where needed, made the following editorial changes.

--- Uppercase acronym in English formerly known as reservations;

--- Deletion of the original text does not meet the standard of written words.

This part is proposed by China Machinery Industry Federation.

This part of the automation systems and integration by the National Standardization Technical Committee (SAC/TC159) centralized.

This section is drafted. Beijing Machinery Industry Automation Research Institute, Beijing University of Aeronautics and Astronautics, Shenyang New Song Robot & Automation shares have

Limited.

Introduction

GB 11291 to develop this part is to identify the integration and installation of industrial robot systems in industrial robot cells and production lines when

The existence of a specific danger.

For specific robot system, the danger is the frequent occurrence of a single form. Number and type of risk is directly related to automation

Nature and complexity of the installation process. The robot type to use, the purpose of the use of the robot, the robot installation, programming, operation and maintenance

Different ways of protection, due to risks associated with the risk of these are different.

In order to understand the requirements of this section GB 11291, and with a word syntax to distinguish absolute requirements and recommended practices or recommended action

action. With "shall" must be identified GB 11291 requirements of this section. These requirements must be completed, unless there is an alternative explanation or wind

Risk assessment identified a suitable replacement. With "appropriate" recommendations to

identify possible solutions recommended action taken or required, but there may be other
Alternatively, the recommended actions are not absolute.

Since the industrial robot applications with variable properties, danger, GB 11291's
headquarters into the robot integration and installation to ensure safety

Provide guidance. Because of security used by an industrial robot design on a particular
robot system, although equally important, its purpose is to supplement

Robotic systems and provide guidance unit in the design, construction and use of
information. The system requirements for robot parts visible

GB 11291.1.

Provide safe robotic systems or units depend on the "stakeholders" cooperation ---
"stakeholders" refers to the shared responsibility to raise

For safe working environment for the ultimate purpose entities. Stakeholders can identify
manufacturers, suppliers, integrators and users (responsible for using the machine

Robots entity), but all in a safe (robot) machine for the common goal. GB 11291's
requirements in this section may be assigned to a

Stakeholders, but at the same request, the case will be many types of stakeholder
responsibilities overlap occurs. Use this part of GB 11291, the

Note to the reader, even if not specifically raised in the "assigned" stakeholder task, all identified
requirements applicable to these phases

Interested parties.

This part is Part 1 covers only robotics GB 11291 and the perfect complement. GB 11291
This section adds

GB/T 15706 and GB 16655 For additional information about compliance. International
standards in the form of Class C standard to identify and respond to industrial robots
integrated,

Installation-specific risk exists and the requirements of industrial robots. New technical
requirements include (but are not limited to). GB 11291.1 in

Safety control system performance, the robot stop function enabled device, program
verification, untethered teaching box specification, norms, and collaborative robot

The new security requirements designed to update aspects of implementation instructions.

This part of GB 11291 and GB 11291.1 composed of robots and robotic equipment series.
Other criteria relates to an integrated machine

Robots system, the coordinate system and axis motion, general characteristics,