

ICS 29.120.30

CCS K 30



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

GB/T 11918.6-2025

**Plugs, socket-outlets and couplers for industrial purposes -
Part 6: DC plugs, socket-outlets and connectors for ship and
shore power supply systems**

工业用插头插座和耦合器 第6部分：船舶岸电系统用直流插头、插座和连接器

Issued on: February 28, 2025

Implemented on: September 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 General Principles	2
5 Standard Rating	2
6 Categories	3
7 Logo	3
8 Size	4
9 Protection against electric shock	5
10 Grounding measures	5
11 Terminals and Ends	5
12 Interlock	5
13 Aging resistance of rubber and thermoplastic materials	6
14 General Structure	6
15 Socket structure	6
16 Plug and connector structure	6
17 Structure of appliance inlet	6
18 Protection level	6
19 Insulation resistance and electrical strength	6
20 Breaking capacity	7
21 Normal Operation	7
22 Temperature rise	7
23 Flexible cables and their connections	8
24 Mechanical strength	8
25 Screws, current-carrying parts and connections	8
26 Creepage distance, electrical clearance and distance through sealant	8
27 Heat, flame and tracking resistance	8
28 Corrosion and rust resistance	8
29 Limited short circuit current withstand test	8
30 Electromagnetic compatibility	9
31 Environmental adaptability	9
10 Reference	21

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. This document is Part 6 of GB/T 11918 "Industrial Plugs, Sockets and Couplers". GB/T 11918 has been published as follows part.

1. General requirements;
2. Dimensional compatibility and interchangeability requirements for electrical accessories with plugs and sockets;
4. Sockets and connectors with or without interlock switches;
5. Dimensions of plugs, sockets, marine connectors and marine inlet sockets for low voltage shore connection systems (LVSC systems) Compatibility and interchangeability requirements;

--- Part 6: DC plugs, sockets and connectors for ship shore power systems. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the China Electrical Equipment Industry Association. This document is under the jurisdiction of the National Technical Committee for Standardization of Electrical Accessories (SAC/TC67). This document was drafted by: China Electric Power Research Institute Co., Ltd., Jiangsu Jianlong Electric Co., Ltd., Water Transport Science and Technology Department of the Ministry of Transport Institute of Science and Technology, Weihai COSCO Shipping Heavy Industry Technology Co., Ltd., Weikai Testing Technology Co., Ltd., NARI Group Co., Ltd., Shenzhen Woerxin Energy Electric Technology Co., Ltd., Xiamen Weien Electric Co., Ltd., Nanjing Connie Technology Industry Co., Ltd., China Merchants Jinling Shipbuilding (Jiangsu) Co., Ltd., Fujian Changhang Green Intelligent Ship Research Institute Co., Ltd., State Administration for Market Regulation Certification and Accreditation Technology Research Institute Xin, Motor (Guangzhou) New Energy Technology Co., Ltd., Bull Group Co., Ltd., Zhejiang Chint Building Electrical Co., Ltd., Chengdu Aergang Lei Technology Co., Ltd., Shanghai Salvage Bureau Salvage Engineering Fleet of the Ministry of Transport, Zhejiang Yuehua Telecom Co., Ltd., Shenzhen Oushengke Connection Technology Co., Ltd., Wenzhou Jiankun Connector Co., Ltd., Changzhou Huzheng Electronic Technology Co., Ltd., Changzhou Zhongdian Xinneng Electric Technology Co., Ltd. Ltd., Yueqing Rongsheng Yingjin Electric Appliance Co., Ltd., Shenzhen Jinling Electronics Co., Ltd., Shenzhen Watt Source Testing and Research Co., Ltd. company. The main drafters of this document are. Cai Jun, Huang Yibin, Liu Yang, Yang Rui, Li Shengjie, Mo Jinfei, Sun Ting, Wen Dianguo, Hu Ping, Xiong Honghuang, Ding Li, Li Guorong, Tang Wenjun, Wu Haiwen, Wang Tao, Zhang Weijun, Xie Guyong, Fei Yong, Wang

Sheng, Yu Shilin, Shao Jingbiao, Zhang Yingchun, Zhu Xiaogang, Chen Kai, Wang Jiaying, Luo Yongjin, Du Ke, He Shengli, Zhan Shijie, Zhang Huoqiang, and Zhang Hongwen.

GB/T 11918 "Industrial plugs, sockets and couplers" aims to unify the types and sizes of plugs, sockets and couplers used in industrial applications. To ensure product safety, it is planned to consist of the following parts.

1.General requirements. The purpose is to specify the structure, mechanical properties, electrical properties, etc. of industrial plugs, sockets and couplers General technical requirements.

2.Dimensional compatibility and interchangeability requirements for electrical accessories with plugs and sockets. The purpose is to give the rated current Dimensional interchangeability requirements for industrial plugs, sockets and couplers exceeding 125A.

--- Part 3.(Leave blank for future documents).

4.Sockets and connectors with or without interlocking switches. The purpose is to give industrial sockets with or without interlocking switches. Technical requirements for anti-electric shock protection, interlocking, switches and their components, structure, mechanical strength, electrical performance, etc. of sockets and connectors.

5.Dimensions of plugs, sockets, marine connectors and marine inlet sockets for low voltage shore connection systems (LVSC systems) The purpose is to reduce the emission of atmospheric pollutants from ships at port, promote the use of shore power by ships at port, and cooperate with The construction of port shore power facilities ensures that they meet the requirements of IEC /PAS80005-3.2014 on plugs, sockets and marine couplers (marine couplers). The requirements of low-voltage connectors and marine input sockets, as well as the application of shore power facilities in my country, promote the mutual application of ships and low-voltage shore power facilities The invention provides the following specifications for plugs and sockets, marine connectors and marine input sockets for low voltage shore connection system (LVSC system) in terms of interchangeability and compatibility. Clear requirements for dimensional compatibility and interchangeability are given.

--- Part 6: DC plugs, sockets and connectors for ship shore power systems. The purpose is to shorten the charging time of ships at port and improve Charging efficiency, promote the standardization and popularization of DC charging in ship shore power systems, cooperate with the construction of port shore power facilities and ship power Gasification transformation, promote the interchangeability and compatibility of ships and low-voltage shore power facilities, and improve the DC plugs and plugs used in ship shore power connection systems. It puts forward safety technical requirements and dimensional compatibility and interchangeability requirements for sockets, connectors, etc. This document will help unify the safety requirements and types and sizes of DC plugs, sockets and connectors used in ship shore power systems, and promote the integration of shore

power The development of a set of equipment and the electrification transformation of ships can effectively improve the utilization rate of shore power facilities and promote the development of green transportation. Industrial plugs, sockets and couplers Part 6: DC plugs for ship shore power systems Sockets and Connectors

1 Scope

Part 6 of China's series on industrial plugs, socket-outlets and couplers, covering the direct current connectors of ship-to-shore power systems - the equipment through which a berthed vessel is connected to the port supply so that it can shut down its auxiliary engines. Shore power is the measure that removes ship emissions from a port: a vessel at berth otherwise runs its generators continuously, in the middle of a city, for as long as it stays. The connector is the physical interface on which that whole arrangement depends, and this part covers the DC version, which is what a modern high power shore connection increasingly uses. It specifies the requirements for the DC plugs, socket-outlets and connectors used in ship and shore power supply systems. What makes this a demanding connector to standardise is the combination of conditions. It carries very high direct current, and DC does not have the current zero that lets an AC arc extinguish itself, so any disconnection under load has to be prevented rather than survived - which puts the interlocking and the sequence of operations at the centre of the standard rather than at its edge. It lives in a marine environment: salt, spray, ice, and the movement of a ship against a quay. It is handled by port and ship personnel, not by electricians, and often at night and in bad weather. And the two halves belong to different owners in different countries, which is why the interface has to be defined dimensionally and not merely functionally. The requirements accordingly cover the ratings and configurations, the dimensions and non-interchangeability, the contact resistance and temperature rise, the degree of protection, the mechanical endurance and the resistance to the marine environment, the earthing and the pilot and interlock circuits, and the safety of the whole connection sequence. Issued on 28 February 2025 and in force since 1 September 2025.

This document specifies the marking, size, protection against electric shock, and other requirements of DC plugs, sockets, and connectors (hereinafter referred to as electrical accessories) for ship shore power systems. Technical requirements for protection, structure, electrical performance, mechanical performance, etc. This document applies to electrical accessories with a rated working voltage not exceeding 1500VDC and a rated current not exceeding 1000ADC. These accessories are intended to be used by trained personnel (GB/T 2900.73-2008, definition 195-04-02) or skilled technicians. (GB/T 2900.73-2008, definition 195-04-01) Installation and use. Unless otherwise specified, this document applies to ambient temperatures of -25°C to 55°C and normal use environments of GB/T 16935.1-2023. Electrical accessories for specified level 3 pollution environments. These electrical accessories are intended to be connected only to copper or copper alloy cables. Sockets or marine inlets installed or fixed on electrical equipment that forms part of the