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NB/T 47014-2011 (JB/T 4708)

Replace JB 4708-2000

Welding Procedure Qualification for Pressure

Equipment

承压设备焊接工艺评定

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Foreword

Comparison with JB 4708-2000 *Welding procedure qualification for steel pressure vessels*, main changes of this Standard are as follows:

- Extended the scope of application from pressure vessel to boiler, pressure vessel and pressure pipeline;
- Added six annexes such as “Flow chart of WPS”, “Additional regulations on base metal, filler metal and welding method”, “Welding Procedure Qualification of Composition Metal Materials”, “Welding procedure qualification of heat exchange pipe and tube plate and additional qualification of welding procedure”, “procedure qualification of screwbolt arc welding” and “Commonly Abbr. and Code of Welding Procedure Qualification”, etc;
- Added the welding procedure qualification of welding methods such as plasma arc welding, electrogas welding, screwbolt arc welding and friction welding, etc;
- Added the welding procedure qualification of titanium products, aluminum products, copper products and nickel products;
- Added the classification and welding procedure qualification of filler metal (such that welding rod, welding wire and welding flux);
- Added the terms of welding procedure qualification, changed the “Guide book of welding procedure” as “Pre-welding procedure specification”;
- Added the terms of “Additional qualification of welding procedure”, “Welding operation instruction”, “Screwbolt arc welding” and “Imperfection”;
- Cancelled the Annex A “Welding procedure qualification of Stainless composite steel” in JB 4708-2000;
- Modified the written structural of JB 4708-2000, centralized the WPQ factor and category; a variety of welding procedure qualification will be written by qualification rules, qualification method, test requirements and evaluation of results;
- Clause 4
Cancelled the welding procedure qualification of type test specimen;
- Clause 4
 - 1) Added the metal materials for boiler and pressure pipeline, and distribute the category and class;
 - 2) Based on GB 150-1998, cancelled and added partial pressure vessel steel and redistribute the category and class;
 - 3) Cancelled the judgement rules of welding rod, welding wire and welding flux in filler metal as shown in Table 1 of JB 4708-2000, cancelled the welding procedure qualification related with electroslag welding in “Welding procedure qualification of butt-jointed weld and fillet weld” those specified in JB 4708-2000. Added several articles and revised the table 6;
- Clause 6
 - 1) Added judgement rules of base metal when plasma arc welding and friction welding. Added the judgement rules of base metal to other welding methods;
 - 2) Revised the cover regulations on test piece thickness and weldment thickness;
 - 3) Revised the tensile test basis and qualified requirements;
 - 4) Changed the width of tubular bending test piece of external diameter $\phi \leq 100\text{mm}$;
 - 5) Added the bending test regulations on titanium products, aluminum products, copper products and nickel products;
 - 6) Revised the regulations at the position of sampling impact test piece in thickness direction;

— Clause 7

- 1) Revised the surfacing process of deposited metal;
- 2) Added the surfacing process factors of plasma arc welding;
- 3) Added the tubular surfacing test piece and stipulate the sampling position;

— Annex

In the recommend form table of welding procedure qualification, added the Table F.3 “Heat exchange tube and tube plate welding procedure card” and Table F.4 “Addition qualification report of heat exchange and tube plate welding procedure”.

The Annex B, C and D of this Standard are normative annex.

The Annex A, F and G of this Standard are informative annex.

This Standard was proposed and under the jurisdiction of National Technical Committee 262 on Boilers and Pressure Vessels of Standardization Administration of China.

Chief draft units and drafters of this Standard:

Hefei General Machinery Research Institute: Ge Zhaowen, Dou Wanbo, Fang Wunong
 China Special Equipment Inspection and Research Institute: Shou Binan, Xie Tiejun, Yang Guoyi
 Special Equipment Safety Supervision Bureau of General Administration of Quality Supervision,
 Inspection and Quarantine of the People's Republic of China: Zhang Jianrong, Wang Xiaolei

Participation draft units and drafters of this Standard:

Shanghai Boiler Works Co., Ltd	Yang Peiliang
Harbin Boiler Company Limited	Yang Song
Lanzhou Lanshi Machine Equipment Co., Ltd	Lei Wanqing
Fushun Mechanical Equipment Manufacturing Co., Ltd	Hu Xihai
Zhonghang Liming Jinxi Chemical Machinery (group) Co., Ltd	Wang Niuwei
Dalian Bingshan Group Jinzhou Heavy Machinery Co., Ltd	Zhan Qi
Research Institute of China Petroleum Pipeline Bureau	Sui Yongli
China National Chemical Engineering Group Corporation	Xia Jiewen
Zhejiang Jindun Holding Group Co., Ltd	Ma Xiakang
Lanzhou Construction Quality Supervision of Petroligenic Natural Gas	Zhang Jianjun

This Standard is in charged of National Technical Committee 262 on Boilers and Pressure Vessels of Standardization Administration of China.

The previous edition of the part replaced by these following one:

- JB 4708-1992;
- JB 4708-2000.

Welding Procedure Qualification for Pressure Equipment

1 Scope

This Standard specifies the welding procedure qualification of butt-jointed weld and filled weld of pressure equipment (Vessel, pressure vessel and pressure pipeline), welding procedure qualification of corrosion resisting build-up welding, composition metal materials, heat exchange tube and tube plate as well as rules, test methods and qualified requirements for screwbolt arc welding procedure.

This Standard is applicable to the welding procedure qualification for gas welding, arc welding by electrodes, hidden arc welding, MIG Welding, gas tungsten-arc welding, electroslag welding, plasma arc welding, friction welding, electrogas welding and screwbolt arc welding, etc. of the steel procedure vessels.

2 Normative References

The articles contained in the following documents have become this standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this Standard.

GB 150	Steel Pressure Vessels
GB 151	Tubular heat exchangers
GB/T 228	Metal Tensile Test Method
GB/T 229	Metal Charpy Nick Impact Test Method
GB/T 699	Quality carbon structural steels
GB/T 700	Carbon structural steels
GB/T 710	Hot-rolled quality carbon structural steel sheets and strips
GB/T 711	Hot-rolled quality carbon structural steel plates and wide strips
GB 713	Carbon and low alloy steel plates for boilers carbon and alloy steel plates for boilers
GB 912	Hot-rolled sheets and strips of carbon structural steels and high strength low alloy structural steels
GB/T 1176	Specification for cast copper alloys
GB/T 1527	Drawn tube of copper and copper alloys
GB/T 1528	Extruded tube of copper and copper alloys
GB/T 1591	High strength low alloy structural steels
GB/T 2040	Sheet of copper and copper alloy
GB/T 2054	Nickel and nickel alloy sheets
GB/T 2653	Bend test methods on welded joints
GB/T 2882	Product of geographical indication—Fuling mustard tuber
GB/T 3077	Alloy structure steels
GB 3087	Seamless steel tubes for low and medium pressure boiler
GB/T 3091	Welded steel pipes for low pressure liquid delivery
GB/T 3274	Hot-rolled Plates and Strips of Carbon Structural Steels and High Strength Low



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