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ENTERPRISE STANDARD OF
BAOSHAN IRON & STEEL CO., LTD.

Q/BQB 267-2018

**Casing for high performance of
strength and toughness**

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Introduction

This Standard is the enterprise standard of Baoshan Iron & Steel Co., Ltd.. This Standard is developed by reference to API SPEC 5CT:2011 and combined with the enterprise's actual situations such as products and quality assurance features.

This Standard is applicable to seamless casings for ultra-deep, ultra-high pressure, and complex stratum rheology oil and gas production environments in oil and gas production of petroleum and natural gas industries. Users of this Standard shall be aware that higher or different requirements may be required in individual applications. For a specific order, it is the purchaser's responsibility to determine these additional requirements based on the intended use and design requirements. The development and issuance of this Standard are not intended in any way to restrict the supplier from supplying the product for individual use or to prohibit the purchaser from accepting other equipment or engineering proposals.

It is the responsibility of steel pipe user to select the right material for the intended use environment. When using this Standard to select appropriate materials in oil and gas industrial production system of complex environments, various factors which affect material properties shall be comprehensively considered.

This Standard does not undertake the obligations of employers, manufacturers, or suppliers to warn, train, or equip their employees on health, safety risks, and precautions, nor their responsibilities under local, provincial, and national laws and regulations.

Information on the safety and health risks and corresponding precautions involved in special materials and working conditions shall be obtained from the employer, manufacturer, or supplier of the material, or from the safety data sheet for its materials.

Nothing in this Standard can be construed as granting, by implication or otherwise, any authority to manufacture, sell, or use any method, equipment, or product included in any patent certificate. Nothing in this Standard can be construed as exonerating the liability of any person for infringement of the power conferred by a patent certificate.

Casing for high performance of strength and toughness

1 Scope

This Standard specifies the technical conditions for the delivery of casing for high performance of strength and toughness of Baoshan Iron & Steel Co., Ltd..

This Standard is applicable to the seamless casing (hereinafter known as casing for short) for ultra-deep, ultra-high pressure, and complex stratum rheology oil and gas production environments in oil and gas production of petroleum and natural gas industries.

The casing steel grades in this Standard are: BG110V, BG125V, BG140V, BG150V, BG155V.

The casing specified in this Standard contains three product specification levels (PSL1, PSL2, PSL3).

2 Normative references

The following documents are indispensable for the application of this document. For the dated references, only the versions with the dates indicated are applicable to this document. For the undated references, the latest version (including all the amendments) are applicable to this document.

ISO 10400:2007 Petroleum and natural gas industries - Equations and calculations for the properties of casing, tubing, drill pipe and line pipe used as casing or tubing

API SPEC 5CT:2011 Specification for casing and tubing

3 General

Unless otherwise specified in this Standard, this Standard uses the corresponding provisions of API SPEC 5CT:2011 standard steel grade given in Table 1. The PSL1 requirement of corresponding API SPEC 5CT:2011 steel grade in Table 1 is generally adopted for supplying. When the contract indicates that the product specification level is PSL2 or PSL3, the PSL2 or PSL3 of

may not be carried out.

7.5 Special requirements

According to the requirements of the purchaser, through negotiation between the supplier and the purchaser, and indicated in the contract, the full wall thickness hardness, grain size, or other items can be inspected. The specific requirements are stipulated by agreement between both parties.

8 Dimensions, weight, tolerance, pipe ends, and defects

8.1 Dimensions

Casings having an outer diameter of 114.3mm~339.72mm (4-1/2"~13-3/8") and a wall thickness of 5.21mm~15.88mm (0.205"~0.625") can be supplied. Through negotiation between the supplier and the purchaser, and indicated in the contract, other specifications may also be supplied.

8.2 Pipe ends

Unless otherwise specified in the contract, the BG series of special threads shall be used for the casing, to meet the joint strength and joint efficiency of the casing under complex conditions. According to the requirements of the purchaser, the user required thread specified by API SPEC 5CT:2011 can also be used. Through negotiation between the supplier and the purchaser, and indicated in the contract, other special threads can also be used. The specific requirements are stipulated by agreement between both parties.

Unless otherwise specified in the contract, the pipe body and coupling threads are not shot blasted.

8.3 Other

The designation and specification, diameter requirements, defects, etc. shall comply with the provisions of PSL1 of P110 steel grade of API SPEC 5CT:2011.

Dimensional tolerances, according to the wall thickness tolerance, are divided into two series of $\geq -12.5\%$ and $\geq -10.0\%$. This Standard encourages users to select the applicable wall thickness tolerance series according to the actual application conditions and the safety design specifications of oil and gas wells. The allowable deviations of outer diameter, wall thickness, weight, length, and straightness of wall thickness tolerance series shall comply with the requirements of the corresponding series in Table 4.

9 Coupling

The product analysis, tensile test, impact test, and other test items of the coupling shall be carried out on the coupling stock and shall comply with the requirements of Clause 7 and Clause 10.

The steel grade of pipe body and matching coupling shall comply with the requirements of Table 5.

10 Inspection and test

10.1 Definition of mechanical property test batch

Each batch of products shall consist of steel pipes of the same steel grade, the same furnace number, the same specification, and the same heat treatment system. For specifications (Designation 1) not greater than 4-1/2, the number of tubing and casings per batch shall be no more than 200; and the number of coupling stocks per batch shall be no more than 100. For specifications (Designation 1) greater than 4-1/2, the number of tubing and casings per batch shall be no more than 100; and the number of coupling stocks per batch shall be no more than 50.

10.2 Hydrostatic test, dimensional inspection, visual inspection

The hydrostatic test and visual inspection shall comply with the requirements of PSL1 of P110 steel grade of API SPEC 5CT:2011.

Dimensional tolerances shall be in accordance with the provisions of order wall thickness series in Table 4.

10.3 Nondestructive testing

Casings, coupling tubing, or coupling stocks shall, according to the requirements of PSL1 of P110 steel grade in API SPEC 5CT:2011, be subjected to nondestructive testing one by one.

The coupling shall also be inspected for magnetic particle on the inner and outer surfaces one by one.

Through negotiation between the supplier and the purchaser, and indicated in the contract, according to the PSL2 or PSL3 requirements of P110 steel grade in API SPEC 5CT:2011, nondestructive testing can also be carried out.

10.4 Other inspection and test items, number of samples

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