

巴厘通用能源公司

PT.GENERAL ENERGY BALI

#2、#3 机组压力容器检验，低压、高压安全 阀校验技术规范书

#2 & #3 Units: Pressure Vessel Inspection; Low-Pressure
and High-Pressure Safety Valve Calibration Technical
Specification Document

批准 (APPROVE): 徐东辉

审核 (VERIFY) : 马金铭

编制 (Prepared by) : 孙建元

2026 年 08 月 10 日

#2、#3 机组压力容器检验，低压、高压安全 阀校验技术规范书

#2 & #3 Units: Pressure Vessel Inspection; Low-Pressure and High-Pressure Safety Valve Calibration Technical Specification Document

总则 General Requirements

1.1 适用范围 Scope of application

本技术规范书适用于巴厘通用能源公司#2、#3 机组压力容器检验，低压、高压安全阀校验外委项目，明确承包方在技术、质量、安全、环保、进度、责任及义务等方面的要求，以确保项目高质量完成。

These Technical Specifications apply to the pressure vessel inspection of Units #2 and #3 at Bali General Energy Company, as well as to the outsourced calibration services for low-pressure and high-pressure safety valves; they clearly define the requirements for the contractor in terms of technology, quality, safety, environmental protection, schedule, responsibilities, and obligations, thereby ensuring the high-quality completion of the project.

1.2 编制依据 Preparation basis

1.2.1 相关行业标准

Related industry standards

1.2.1.1 《电力建设安全工作规程》（火力发电厂部分）、TSG 21-2016《固定式压力容器安全技术监察规程》、TSG 11-2020《锅炉安全技术规程》、DL/T 612-2017《电力行业锅炉压力容器安全监督规程》、DL 647-2004《电站锅炉压力容器检验规程》、《防止电力生产事故的二十五项重点要求(2023 版)》

1.2.1.1 The Safety Work Procedures for Electric Power Construction (Thermal Power Plant Section), TSG 21-2016 'Safety Technical Supervision Regulations for Fixed Pressure Vessels', TSG 11-2020 'Boiler Safety Technical Regulations', DL/T 612-2017 'Safety Supervision Regulations for Boiler and Pressure Vessel in the Power Industry', DL 647-2004 'Inspection Regulations for Boiler and Pressure Vessel in Power Stations', and the Twenty-Five Key Requirements for Preventing Power Production Accidents (2023 Edition)

1.2.2 设计文件、设备技术资料

Design documents, equipment information

1.2.2 巴厘通用能源公司 3×142MW 466t/h 超高压自然循环锅炉压力容器、安全阀技术参数

1.2.2 Technical parameters of pressure vessel and safety valve for 3x142MW 466t/h ultra-high pressure natural circulation boiler of Bali General Energy Company

1.2.3 企业标准

manufacturer's standard

1.2.3.1 巴厘通用能源公司《3×142MW 机组锅炉压力容器、安全阀检修规程》

1.2.3.1 Bali General Energy Company "3x142MW unit boiler pressure vessel, safety valve maintenance regulations"

1.3 技术规范的解释权 **Right of interpretation**

本技术规范书由巴厘通用能源公司生产技术部编制并解释，未尽事宜由双方协商确定。

This technical specification is prepared and interpreted by the Production Technology Department of Bali General Energy Company. Any matters not covered shall be determined by negotiation between the two parties.

2. 工作范围 **Working scope**

2.1 项目概述 **Project Overview**

2.1.1 项目名称

Project Name

#2、#3 机组压力容器检验、低压、高压安全阀校验

#2 & #3 Units: Pressure vessel inspection; low-pressure and high-pressure safety valve calibration

2.1.2 项目地点

Project Location

印度尼西亚巴厘通用能源公司

PT.GENERAL ENERGY BALI

2.1.3 项目背景及目的

Project Background and Purpose

根据 TSG 21-2016《固定式压力容器安全技术监察规程》、TSG 11-2020《锅炉安全技术规程》、DL/T 612-2017《电力行业锅炉压力容器安全监督规程》、DL 647-2004《电站锅炉压力容器检验规程》、《防止电力生产事故的二十五项重点要求(2023 版)》要求，压力容器、安全阀应定期检验，既大大提高了设备的使用寿命及可靠性，又保证了设备的安全稳定运行。

According to the TSG 21-2016 'Safety Technical Supervision Regulations for Fixed Pressure Vessels', TSG 11-2020 'Boiler Safety Technical Regulations', DL/T 612-2017 'Safety Supervision Regulations for Boiler Pressure Vessels in the Power Industry', DL 647-2004 'Inspection Regulations for Power Station Boiler Pressure Vessels', and the 'Twenty-Five Key Requirements for Preventing Power Production Accidents (2023 Edition)', pressure vessels and safety valves should be regularly inspected. This not only significantly enhances the service life and reliability of the equipment but also ensures its safe and stable operation.

2.1.4 工程范围

Project scope

#2、#3 机组压力容器检验，低压、高压安全阀（汽机、锅炉）校验。低压安全阀拆下来在检修间研磨检验检修，高压安全阀在线校验，压力容器检验（详见附件）

#2 and #3 Units: Pressure vessel inspection; low-pressure and high-pressure safety valves (for turbine and boiler systems) calibration. Low-pressure safety valves shall be disassembled and subjected to grinding and inspection in the maintenance room; high-pressure safety valves shall undergo online calibration; pressure vessel inspection (refer to the appendix for details).

2.2 外委工作内容 Outsourcing work content

2.2.1 #2、#3 机组压力容器检验、低压、高压安全阀（汽机、锅炉）校验。低压安全阀拆下来在检修间研磨检验检修，高压安全阀在线校验，校验完毕后经验收后方为合格。

2.2.1 #2 & #3: Inspection of pressure vessels; calibration of low-pressure and high-pressure safety valves (for turbine and boiler systems). Low-pressure safety valves shall be disassembled and subjected to grinding, inspection, and overhaul in the maintenance room; high-pressure safety valves shall undergo online calibration; only after completion of the calibration process and passing the final acceptance inspection will they be deemed qualified.

2.2.2 工作结束后，乙方需出具具有法律效应的检验报告并加盖公章，并提交至甲方存档备案。

2.2.2 Upon completion of the work, Party B shall issue a legally binding inspection report stamped with the official company seal, and submit said report to Party A for archiving and record-keeping purposes.

3. 技术要求 Technical requirements

3.1 主要技术指标 Main technical indicators

3.1.1 主要技术参数要求

Technical parameter requirements

详见附件

see the attachment for further information

3.2 质量要求 Quality requirements

3.2.1 承包方需满足的质量标准

Quality standards that contractors must meet

3.2.1.1 企业资质及人员要求：承包方必须满足相应的施工企业资质等级，有相关机组检修业绩，检修人员满足现场施工条件。

3.2.1.1 Enterprise qualification and personnel requirements: The contractor must meet the corresponding qualification level of the construction enterprise, have the relevant

unit maintenance performance, and the maintenance personnel shall meet the on-site construction conditions.

3.2.1.2 施工过程控制: 施工过程中, 各工序应按照施工技术标准进行质量控制, 每道工序完成后进行检查, 确保施工质量符合技术要求和规范。

3.2.1.2 Construction process control: During the construction process, each process shall be quality controlled in accordance with the construction technical standards, and shall be inspected after the completion of each process to ensure that the construction quality meets the technical requirements and specifications.

3.2.1.3 质量管理体系: 承包方应建立健全的质量管理体系, 包括相应的施工技术标准、施工质量检验制度, 施工现场应进行相应的施工技术标准控制, 每道工序完成后进行检查, 并进行交接检验, 形成记录。

3.2.1.3 Quality management system: The Contractor shall establish a sound quality management system, including the corresponding construction technical standards and construction quality inspection system. The construction site shall control the corresponding construction technical standards, inspect each process after completion, and conduct handover inspection to form records.

3.2.2 质量验收标准及方法

Quality acceptance standards and methods

质量验收标准

Quality acceptance standards

3.2.2.1 安全性标准: 检修后的设备应能够使用长久, 检修区域应无安全隐患, 所有安全防护装置和设备必须完好无损

3.2.2.1 Safety standard: The maintenance equipment should be used for a long time, there should be no safety risks in the maintenance area, and all safety protection devices and equipment must be intact

3.2.2.2 外观标准: 检修校验后的设备应无变形、破损、划痕等。

3.2.2.2 Appearance standard: the equipment after maintenance shall be free of deformation, damage, scratches, etc.

3.2.2.3 工艺标准: 检修过程应符合相关工艺要求, 所使用的材料和工器具等应符合质量标准。

3.2.2.3 Process standard: The maintenance process shall meet the relevant process requirements, and the materials and instruments used shall meet the quality standards.

质量验收方法

Quality acceptance method

3.2.2.4 文件审查: 审查设备检修记录、技术文件、检验报告等, 确保文件完整、准确、规范。

3.2.2.4 Document review: Review the equipment maintenance records, technical documents, inspection reports, etc., to ensure that the documents are complete, accurate and standard.

3.2.2.5 现场勘查: 检查设备以及连接件的外观, 评估设备的安全性、功能性、外观等。

3.2.2.5 Site investigation: Check the appearance of the equipment and the connections, and evaluate the safety, functionality and appearance of the equipment.

3.2.3 质保期限及售后服务

Warranty period and after-sales service

质保期为 2 年，如在质保期内出现与本次检修项目相关的缺陷及故障，乙方需对本项目免费进行维修。

The warranty period is 2 years; should any defects or malfunctions related to this maintenance project occur during the warranty period, Party B shall provide free repair services for this project.

3.3 施工及安装要求 Construction and installation requirements

3.3.1 施工工艺及技术要求

Construction technology and technical requirements

3.3.1.1 乙方必须了解工作的具体内容（如不清楚可实际现场踏勘）。

3.3.1.1 Party B must be fully aware of the specific details of the work (if unclear, a site survey may be conducted);

3.3.1.2 拆除、安装安全阀的工作由甲方人员负责。

3.3.1.2 The dismantling and installation of the safety valve shall be carried out by party A personnel.

3.3.1.3 低压安全阀拆下来以后放到检修车间由乙方负责检修校验，检修校验完毕后安全阀表面刷耐高温、耐腐蚀的油漆，检验合格证固定在安全阀上面（标注校验压力、本次校验时间、下次校验时间），然后由甲方人员负责安装。

3.3.1.3 After the low-pressure safety valve is removed, it shall be placed in the maintenance workshop for repair and calibration by Party B; upon completion of the repair and calibration process, the surface of the safety valve shall be coated with high-temperature and corrosion-resistant paint, and a certificate of inspection shall be affixed to the safety valve (indicating the calibration pressure, the current calibration date, and the next calibration date); thereafter, installation shall be performed by personnel from Party A.

3.3.1.4 机组启动后额定负荷在 70% 以上后方可在线校验高压安全阀。

3.3.1.4 The high pressure safety valve can be calibrated online only after the rated load of the unit is above 70%.

3.3.1.5 在线校验高压安全阀时与甲方集控室人员保持通讯畅通（因校验时需要集控室人员提供实时在线压力）。

3.3.1.5 Keep communication with the personnel in the centralized control room of Party A when verifying the high-pressure safety valve online (because the personnel in the centralized control room need to provide real-time online pressure during verification).

3.3.1.6 乙方人员需要配合时，由甲方人员负责协调解决。

3.3.1.6 When Party B's personnel require assistance, Party A's personnel shall be responsible for coordinating and resolving such matters.

3.3.1.7 在线校验高压安全阀完毕后，通知当班值长工作已结束。

3.3.1.7 After the online verification of high pressure safety valve is completed, inform the duty chief that the work has been finished.

3.3.1.8 在线校验结束后检验合格证固定在安全阀上面（标注校验压力、本次校验时间、下次校验时间）。

3.3.1.8 After the online verification, the inspection certificate is fixed on the safety valve (marked with the verification pressure, the verification time and the next verification time).

3.3.1.9 在线校验高压安全阀时拆卸的零部件放在指定位置，禁止丢失，校验完毕后所有零部件需回装，无遗漏。

3.3.1.9 When the online verification of high pressure safety valve is carried out, the disassembled parts should be placed in the designated position and not lost. After the verification, all parts should be reinstalled without omission.

3.3.1.10 所有安全阀检修校验工具需乙方提供，低压安全阀在甲方厂区检修车间进行检修、校验，高压安全阀在线校验在设备本身位置。

3.3.1.10 All safety valve maintenance and calibration tools shall be provided by Party B; low-pressure safety valves shall undergo maintenance and calibration at Party A's plant maintenance workshop, while high-pressure safety valves shall undergo online calibration directly at their respective equipment locations.

3.3.1.11 所有安全阀校验完毕后，运行中无内漏现象，如有内漏现象在保质期内需承包方负责检修。

3.3.1.11 After all safety valves have been checked, there is no internal leakage during operation. If there is any internal leakage, the contractor shall be responsible for maintenance within the quality guarantee period.

3.3.1.12 低压、高压安全阀所使用的金属缠绕垫片需乙方提供。

3.3.1.12 The metal wound gaskets required for low-pressure and high-pressure safety valves shall be supplied by Party B.

3.3.1.13 压力容器需外部检验，检验部位需拆除保温，由乙方检验其焊缝位置，具体检验部位由乙方确认，检验完毕后张贴合格证。

3.3.1.13 Pressure vessels shall undergo external inspection; during the inspection, the insulation covering at the inspection points shall be removed, allowing Party B to inspect the weld locations; the specific inspection areas shall be confirmed by Party B; upon completion of the inspection, a certificate of conformity shall be affixed.

3.4 试验及验收 Testing and acceptance

3.4.1 试验方法及合格标准

Test methods and qualification standards

3.4.1.1 判定安全阀校验完毕后是否内漏，只有在运行期间质保期内检验。

3.4.1.1 Determine whether the safety valve is leaking after calibration only during the warranty period of operation.

3.4.2 验收流程及合格判定标准

Acceptance process and qualification criteria

验收流程

3.4.2.1 检修人员自检：检修人员在完成检修后，自行检查设备，确保设备符合验收标准。

3.4.2.1 Self-inspection by the maintenance personnel: After completing the maintenance, the maintenance personnel shall check the equipment by themselves to ensure that the equipment meets the acceptance standards.

3.4.2.2 维护班组验收：由班组负责人或技术员对检修后的设备进行验收。

3.4.2.2 Maintenance team acceptance: the team leader or technician shall check and accept the repaired equipment.

3.4.2.3 生产技术部专业人员验收：由专业人员对设备进行验收，包括外观、功能、性能等方面的检查。

3.4.2.3 Acceptance of professionals in the Production Technology Department: Professionals shall check and accept the equipment, including the inspection of appearance, function, performance and other aspects.

合格判定标准

Qualified judgment standard

3.4.2.4 低压、高压安全阀在运行期间质保期内无内漏。

3.4.2.4 Low pressure and high pressure safety valves have no internal leakage during operation and within the warranty period.

4. 进度要求 Progress requirements

4.1 总工期要求

Total construction period requirements

4.1.1 #3 机组小修总工期：2026.11.01-2026.11.07

4.1.1 #3 Total duration of minor repair of unit: 2026.11.01-2026.11.07

4.1.2 本次#3 机组施工工期：2026.11.02-2026.11.07

4.1.2 Construction period for Unit #3: 2026.11.02 – 2026.11.07

4.1.3 #2 机组小修总工期：2026.12.01-2026.12.14

4.1.3 #2 Total duration of minor repair of unit: 2026.12.01-2026.12.14

4.1.4 本次#2 机组施工工期：2026.12.02-2026.12.14

4.1.4 Construction period for Unit #2: 2026.12.02 – 2026.12.14

具体检修时间以甲方通知为准

The specific maintenance schedule shall be subject to Party A's notification.

5. 安全及环保要求 HSE requirements

5.1 安全管理 Safety Management

5.1.1 施工安全管理要求

Construction safety management requirements

5.1.1.1 遵守法律法规：严格遵守国家有关安全生产的法律法规，如《中华人民共和国安全生产法》、《建设工程安全生产管理条例》等。

5.1.1.1 Compliance with laws and regulations: strictly abide by the national laws and regulations on production safety, such as Safety Law of the People's Republic of China, Regulations on the Administration of Safe Production Safety in Construction Projects, etc.

5.1.1.2 安全管理制度：严格遵守巴厘通用能源公司安全管理制度。

5.1.1.2 Safety management system: Strictly abide by the safety management system of Bali General Energy Company.

5.1.1.3 安全培训：三级安全教育：公司级、车间级、班组级。

5.1.1.3 Safety training: Three-level safety education: Company level, Workshop level, and Team level

5.1.1.4 安全管理机构：乙方需设立专职安全人员，必须持证上岗，明确项目经理为安全生产第一责任人。

5.1.1.4 Party B shall appoint full-time safety personnel who must hold valid certifications to perform their duties, and shall designate the project manager as the primary responsible person for work safety.

5.1.1.5 现场安全管理：开工前需安全评估，危险源辨识，临时用电需符合“三级配电、五芯电缆、漏电保护”等要求，严禁私拉乱接，严禁违章作业，合理规划施工现场，确保施工区域安全、整洁、有序，设置安全警示标志，提醒施工人员注意安全。

5.1.1.5 site safety management: safety before start assessment, hazard identification, temporary electricity needs to conform to the "tertiary distribution, five core cable, leakage protection" requirements, it is forbidden to private pull disorderly, it is strictly prohibited illegal operation, reasonable planning and construction site, ensure the construction area safety, neat, orderly, set the safety warning signs, remind construction personnel pay attention to safety.

5.1.1.6 文明施工与环保：合理规划场地布局，保障施工人员休息与饮食安全。

5.1.1.6 Civilized construction and environmental protection: reasonably planning the site layout to ensure the rest and food safety of the construction personnel.

5.1.1.7 责任追究：对违反安全规定的行为，依法依规追责，发生事故严肃处理。

5.1.1.7 Accountability investigation: Those who violate safety regulations shall be held accountable according to law and regulations, and accidents shall be seriously investigated and dealt with.

5.1.2 施工人员资质及培训要求

Construction personnel qualifications and training requirements

5.1.2.1 施工人员资质要求：年龄在 18-60 周岁之间，身体健康，无妨碍从事本工种的疾病（如高血压、心脏病等），需提供有效证件及体检报告，特殊工种需持证上岗（如压力容器检验操作证等）。

5.1.2.1 Qualification requirements for construction personnel: Applicants must be between 18 and 60 years of age, in good health, and free from any diseases that would hinder their ability to perform the specific job duties (e.g., hypertension, heart disease); valid identification documents and a medical examination report must be provided; for special occupations, a relevant qualification certificate must be held (such as a Pressure Vessel Inspection Operator Certificate).

5.1.2.2 安全教育培训要求：三级教育：公司级、车间级、班组级，考试合格方可上岗。

5.1.2.2 Safety education and training requirements: three-level education: At the company level, workshop level, and team level, employees may only commence work after passing the required examinations.

5.1.3 防范措施及应急预案

Preventive measures and emergency plans

5.1.3.1 风险预防措施：风险辨识与管控、技术措施、管理措施。

5.1.3.1 Risk prevention measures: risk identification and control, technical measures and management measures.

5.1.3.2 安全防护标准化：个人防护用品、现场防护措施。

5.1.3.2 Safety protection standardization: personal protective equipment and on-site protection measures.

5.1.3.3 设备与机械安全管理、文明施工与环保措施。

5.1.3.3 Equipment and machinery safety management, civilized construction and environmental protection measures.

5.1.3.4 应急组织机构与职责：应急指挥部以项目经理为总指挥，安全员、技术负责人等为成员。

5.1.3.4 Emergency organization and responsibilities: The emergency headquarters shall take the project manager as the chief commander, and the safety officer and the technical leader as the members.

5.1.3.5 职责分工：救援组、疏散组、通讯组、后勤组。

5.1.3.5 Division of responsibilities: rescue group, evacuation group, communication group and logistics group.

5.1.3.6 应急物资储备：救援箱（含止血带、纱布、药品等）、灭火器、应急照明、对讲机、AED 等。

5.1.3.6 Emergency supplies reserve: rescue box (including tourniquet, gauze, medicine, etc.), fire extinguishers, emergency lighting, walkie-talkie, AED, etc.

5.1.3.7 应急响应流程：报警与报告、紧急处置、保护现场、善后处理。

5.1.3.7 Emergency response process: alarm and report, emergency disposal, site protection and after-treatment.

5.2 环保要求 Environmental requirements

5.2.1 施工现场环保管理措施

Environmental protection management measures at construction sites

5.2.1.1 扬尘污染防治：覆盖与围挡、洒水降尘、车辆冲洗、禁止高空抛洒。

5.2.1.1 Dust pollution prevention and control: covering and enclosure, sprinkling water and dust removal, vehicle washing, and prohibit throwing from high altitude.

5.2.1.2 噪声污染控制：限制作业时间、降低设备噪声。

5.2.1.2 Noise pollution control: limit the operation time and reduce the equipment noise.

5.2.1.3 生态保护措施：植被保护、水土保持。

5.2.1.3 Ecological protection measures: vegetation protection, soil and water conservation.

5.2.2 废弃物处理规定

Waste disposal requirements

5.2.2.1 低压、高压安全阀检验校验完毕后，需把周围卫生打扫干净。

5.2.2.1 After the inspection and verification of low pressure and high pressure safety valve, the surrounding area should be cleaned up.

6 管理及罚则 management and penalty

6.1 乙方应服从甲方现场（安全文明施工、施工工艺质量、工期控制、人员供应）管理，因乙方管理不善或因乙方员工违章操作造成的人身伤害，由乙方自行处理并承担全部责任；因乙方员工人为原因造成的设备损坏由乙方承担由此引发的一

切赔偿责任。

6.1 Party B shall comply with Party A's on-site management (including safety and civilized construction, construction quality, schedule control, and personnel supply). Any personal injuries caused by Party B's poor management or employees' violation of operating procedures shall be handled by Party B, which shall bear full liability. Party B shall also assume all compensation liabilities for equipment damage caused by its employees' intentional acts.

6.2 乙方在工作中不服从甲方的管理和工作安排，视情节轻重每次考核 20-200 万印尼盾。

6.2 If Party B fails to comply with Party A's management and work arrangements during employment, a fine of 200,000 to 2,000,000 Indonesian Rupiah (IDR) will be imposed per assessment, depending on the severity of the violation.

6.3 施工中发生质量问题，不及时报告，自行处理并掩盖的，考核 40-100 万印尼盾/每次，导致事故按程度另计，最高按非停考核。

6.3 Failure to report quality issues during construction, self-resolution, or concealment will incur a penalty of 400,000 to 1,000,000 Indonesian rupiah per incident. The severity of the incident will determine additional penalties, with the maximum penalty being a non-stop assessment.

6.4 现场施工因措施不当、发生火灾、跑水、跑气、跑油现象，考核 40 万印尼盾/每次。

6.4 On-site construction will incur a penalty of 400,000 Indonesian rupiah (IDR) per incident due to improper measures, including fire, water leakage, gas leakage, or oil spillage.

6.5 乙方在施工中如损坏设备、元件、仪表、仪器、电缆、电线等，考核 400 万印尼盾/每次，并且甲方有权要求 100%按采购价索赔。

6.5 If Party B damages equipment, components, instruments, cables, or wires during construction, a penalty of 4,000,000 Indonesian rupiah (IDR) will be imposed per incident, and Party A reserves the right to claim full compensation at the original purchase price.

6.6 发生管理性、指挥性、作业性违章，考核 40 万印尼盾每人次。

6.6 A penalty of 400,000 Indonesian rupiah (IDR) per violation will be imposed for managerial, command, or operational violations.

6.7 违反工作票管理制度，考核 20~200 万印尼盾/次。

6.7 Violation of work permit regulations will result in a penalty of 200,000 to 2,000,000 Indonesian rupiah per offense.

6.8 修后达不到甲方确定的验收标准，考核 20~200 万印尼盾/次。

6.8 If the post-repair quality fails to meet the acceptance criteria set by Party A, a penalty of IDR 200,000 to 2,000,000 will be imposed per instance.

附件:

appendix :

高压安全阀

high pressure safety valve

序号 order number	名称 name	安装位置 installation site	规格型号 specifications and models	介质 agent	数量 quantity	整定压力 set-pressure		设计温度℃ design temperature °C
						开启 Mpa open	回座 Mpa Sit back	
1	弹簧式安全阀 Spring-loaded safety valve	汽包 steam pocket	3" *6" 1755WB	蒸汽 steam	1	16.02	15.54	348
2	弹簧式安全阀 Spring-loaded safety valve	汽包 steam pocket	3" *6" 1755WB	蒸汽 steam	1	16.5	15.84	348
3	弹簧式安全阀 Spring-loaded safety valve	过热器 superheater	3" *6" 1759WB	蒸汽 steam	1	14.36	13.93	552

4	弹簧式安全阀 Spring-loaded safety valve	再热器进口 Reheater inlet	6" *8" 1705RWB	蒸汽 steam	1	3.24	3.14	359
5	弹簧式安全阀 Spring-loaded safety valve	再热器进口 Reheater inlet	6" *8" 1705RWB	蒸汽 steam	1	3.34	3.21	359
6	弹簧式安全阀 Spring-loaded safety valve	再热器出口 Exit of reheater	4" *6" 1765WE	蒸汽 steam	1	2.98	2.89	552
7	弹簧式安全阀 Spring-loaded safety valve	再热器出口 Exit of reheater	4" *6" 1765WE	蒸汽 steam	1	3.02	2.9	552

低压安全阀

low-pressure safety valve

序号 order number	名称 name	安装位置 installation site	规格、型号 specifications and models	介质 agent	数量 quantity	整定压力 set-pressure	设计温度℃ design temperature °C
1	弹簧式安全阀 Spring-loaded safety valve	吹灰蒸汽 Steam for soot blowing	DN80-10.0Mpa A48SBY-100	蒸汽 steam	1	3.92	425

2	弹簧式安全阀 Spring-loaded safety valve	连排扩容器 Reinforced expansion vessel	DN80-2.5Mpa A48Y-25	蒸汽、水 Steam, water	1	1.1	350
3	弹簧式安全阀 Spring-loaded safety valve	电除尘仓泵储气罐 Electrostatic precipitator tank pump gas storage tank	DN32-1.0Mpa A48Y-16C	压缩空气 compressed air	1	1.54	300
4	弹簧式安全阀 Spring-loaded safety valve	渣仓储气罐 Coal storage gas tank	DN20-1.0Mpa A27W-10T	压缩空气 compressed air	1	0.84	200
5	弹簧式安全阀 Spring-loaded safety valve	除氧器 deaerator	DN150-2.5Mpa A48Y-25C	水、蒸汽 Water, steam	1	0.9	350
6	弹簧式安全阀 Spring-loaded safety valve	除氧器 deaerator	DN150-2.5Mpa A48Y-25C	水、蒸汽 Water, steam	1	0.9	350
7	弹簧式安全阀 Spring-loaded safety valve	除氧器 deaerator	DN150-2.5Mpa A48Y-25C	水、蒸汽 Water, steam	1	0.9	350
8	弹簧式安全阀 Spring-loaded	辅汽联箱 Auxiliary steam	DN100-2.5Mpa	蒸汽 steam	1	1.27	350

	safety valve	header	A48Y-25				
9	弹簧式安全阀 Spring-loaded safety valve	辅汽联箱 Auxiliary steam header	DN150-2.5Mpa A48Y-25	蒸汽 steam	1	1.27	350
10	弹簧式安全阀 Spring-loaded safety valve	辅汽联箱 Auxiliary steam header	DN150-2.5Mpa A48Y-25	蒸汽 steam	1	1.27	350
11	弹簧式安全阀 Spring-loaded safety valve	#1 高压加热器 #1 High pressure heater	DN50-6.4Mpa A48Y-64	蒸汽、水 Steam, water	1	4.4	425
12	弹簧式安全阀 Spring-loaded safety valve	#2 高压加热器 #2 High pressure heater	DN80-4.0Mpa A48Y-40	蒸汽、水 Steam, water	1	3.3	425
13	弹簧式安全阀 Spring-loaded safety valve	#4 低压加热器 #4 Low pressure heater	DN80-1.6Mpa A48Y-16C	蒸汽、水 Steam, water	1	0.6	425
14	弹簧式安全阀 Spring-loaded safety valve	#5 低压加热器 #5 Low pressure heater	DN80-1.6Mpa A48Y-16C	蒸汽、水 Steam, water	1	0.34	425
15	弹簧式安全阀 Spring-loaded safety valve	#6 低压加热器 #6 Low pressure heater	DN100-1.6Mpa A48Y-16C	蒸汽、水 Steam, water	1	0.15	425
16	弹簧式安全阀 Spring-loaded safety valve	给水泵入口#1 Pump inlet #1	DN25-1.6Mpa A41H-16C	水 water	1	1.13	350

17	弹簧式安全阀 Spring-loaded safety valve	给水泵入口#2 Pump inlet #2	DN25-1.6Mpa A41H-16C	水 water	1	1.13	350
18	弹簧式安全阀 Spring-loaded safety valve	高压加热器水侧 High pressure heater water side	DN25-32Mpa A41H-320	水 water	1	22	350
19	弹簧式安全阀 Spring-loaded safety valve	汽机 5.5 米压缩空 气罐 5.5 m compressed air tank for steam engine	DN50-1.6Mpa A41H-16C	压缩空气 compressed air	1	0.98	200
20	弹簧式安全阀 Spring-loaded safety valve	汽机 5.5 米辅汽轴 封供汽母管 The auxiliary steam shaft seal of the 5.5m steam engine is the steam supply main pipe	DN150-1.6Mpa A48Y-16C	蒸汽 steam	1	0.16-0.2	350

压力容器

Pressure vessel

序号 order number	名称 name	安装位置 installation site	介质 agent	数量 quantity	设计压力 design pressure	设计温度℃ design temperature °C
1	定排扩容器 Fixed displacement expander	锅炉 0 米 The boiler is 0 meters	蒸汽、水 Steam, water	1	1.6	350
2	连排扩容器 Line up the expansion container	汽机房 25 米 The engine room is 25 meters	蒸汽、水 Steam, water	1	1.6	400
3	灰库仪用气储气罐 Gas storage tank for ash storage	灰库 0 米 The ash storage is 0 m	压缩空气 compressed air	1	1.6	60
4	渣仓用气储气罐 Gas storage tank for slag warehouse	捞渣机渣仓 Slag bin of slag crusher	压缩空气 compressed air	1	0.84	110
5	除尘仓泵用气储气罐 Gas storage tank for dust removal and warehouse pump	电除尘 0 米 Electrostatic precipitator 0 m	压缩空气 compressed air	1	1.6	60
6	脱硫仪用气储气罐	脱硫 0 米	压缩空气	1	1.2	100

	Gas storage tank for desulfurizer	Desulfurization 0 meters	compressed air			
7	#1 高压加热器 #1 high pressure heater	汽机房 9.5 米 The engine room is 9.5 meters	蒸汽、水 Steam, water	1	管程 22.0MPa, 壳程 4.4MPa Tubular process 22.0MPa, shell 4.4MPa	管程 250℃, 壳程 380/280℃ The tube side is 250℃ and the shell side is 380/280℃
8	#2 高压加热器 #2 High pressure heater	汽机房 9.5 米 The engine room is 9.5 meters	蒸汽、水 Steam, water	1	管程 22.0MPa, 壳程 3.3MPa Tubing process 22.0MPa, shell 3.3MPa	管程 250℃, 壳程 360/220℃ The tube side is 250℃ and the shell side is 360/220℃
9	除氧器 deaerization plant	汽机房 25 米 The engine room is 25 meters	蒸汽、水 Steam, water	1	0.98	410
10	#4 低压加热器 #4 Low pressure heater	汽机房 5.5 米 The engine room is 5.5 meters	蒸汽、水 Steam, water	1	管程 3MPa, 壳程 0.6MPa The tube side is 3MPa and the shell side is 0.6MPa	管程 170℃, 壳程 340/170℃ The tube side is 170℃ and the shell side is 340/170℃
11	#5 低压加热器 #5 low pressure heater	汽机房 5.5 米 The engine room is 5.5 meters	蒸汽、水 Steam, water	1	管程 3MPa, 壳程 0.34MPa The tube side is 3MPa and the shell side is 0.34MPa	管程 140℃, 壳程 270/140℃ The tube side is 140℃ and the shell side is 270/140℃

12	#6 低压加热器 #6 low pressure heater	汽机房 5.5 米 The engine room is 5.5 meters	蒸汽、水 Steam, water	1	管程 3MPa, 壳程 0.15MPa The tube side is 3MPa and the shell side is 0.15MPa	管程 120℃, 壳程 200/120℃ The tube side is 120℃ and the shell side is 200/120℃
13	#7 低压加热器 #7 low pressure heater	汽机房 8 米 The engine room is 8 meters	蒸汽、水 Steam, water	1	管程 3MPa, 壳程 0.10MPa The tube side is 3MPa and the shell side is 0.10MPa	管程 120℃, 壳程 200/120℃ The tube side is 120℃ and the shell side is 200/120℃
14	疏水扩容器 A water-soluble dilution vessel	汽机房 0 米 The engine room is 0 m	蒸汽、水 Steam, water	1	0.98Mpa	300℃
15	辅汽疏水扩容器 Auxiliary steam drain expansion vessel	汽机房 5.5 米 The engine room is 5.5 meters	蒸汽、水 Steam, water	1	/	/
16	汽机仪用压缩储气罐 Compressed gas storage tank for turbine instrument	汽机房 5.5 米 The engine room is 5.5 meters	压缩空气 compressed air	1	1.6	60

注：上述列表只为 1 台机组的设备清单，2 台机组同类设备参数相同，不再重复列出。

Note: The above list represents only the equipment inventory for one unit; since the equipment parameters for the two units are identical, they are not listed again.