

CERTIFICATE OF OXYGEN CLEANING
& OXYGEN-SERVICE PREPARATION
氧气清洗与氧气工况准备证书

Certificate No. / 证书编号:

Date of Issue / 签发日期:

1. SUPPLIER INFORMATION | 供应商信息

Company / 公司名称

Quality Management System
质量管理体系

ISO 9001:2015

Product Compliance
产品合规/认证

CE; ATEX (where applicable); RoHS (where applicable)

2. PRODUCT INFORMATION | 产品信息

Product Name / 产品名称

Pressure Transmitter / Liquid Level Sensor
压力/液位变送器

Model Number / 产品型号

SI-2088

Serial Number / 序列号

[Insert unique S/N, e.g., 260620-001]

Customer P.O. No. / 客户
订单号

[Insert PO Number]

Pressure Range / 压力量程

[Insert configured pressure range]

Intended Service / 预期工
况

Oxygen / Liquid Oxygen (LOX) Service
氧气/液氧工况

3. CERTIFICATION STATEMENT | 认证声明

This is to certify that the instrument identified above has been individually processed, cleaned, degreased, dried, inspected, capped and packaged specifically for Oxygen / Liquid Oxygen (LOX) Service. This certification is based on the unit-specific manufacturing and cleaning record and is not based solely on the nominal materials of construction.

特此证明, 上述仪表已按照单台产品记录, 针对氧气/液氧工况进行了专门的加工、清洗、脱脂、干燥、检查、封口及包装; 本证书并非仅依据通常被认为与氧气相容的名义材料而签发。

Applicable standards and controlled procedure / 适用标准及受控程序:

ASTM G93/G93M-25: Standard Guide for Cleanliness Levels and Cleaning Methods for Materials and Equipment Used in Oxygen-Enriched Environments

CGA G-4.1: Cleaning of Equipment for Oxygen Service

EIGA Doc 33/18: Cleaning of Equipment for Oxygen Service

Internal SOP / 内部程序: HK-SOP-02C-2024, current approved revision

4. VERIFICATION OF CLEANLINESS | 洁净度验证

Unit identification / 单台追溯: S/N [Insert S/N]. All actual results below shall be completed from the individual cleaning and inspection record.

Verification Item 验证项目	Acceptance Criterion 验收标准	Verification Method / Record 验证方法/记录	Actual Result 实际结果
White-light inspection 白光检查	No visible oil, grease, residue, particles, fibres or moisture 不得存在可见油脂、残留物、颗粒、纤维或水分	100% visual inspection under bright white light 强白光 100%目视检查	[PASS / FAIL]
UV inspection 紫外线检查	No fluorescence attributable to oil, grease, detergent residue or fibres 不得出现由油脂、清洗剂残留或纤维造成的荧光	Supplementary black-light inspection; not used alone for quantitative acceptance 辅助黑光检查，不单独用于定量判定	[PASS / FAIL]
Hydrocarbon / NVR 碳氢化合物/不挥发残留	Proposed internal acceptance criterion: ≤ 11 mg/m ² 拟定内部验收限值: ≤ 11 mg/m ²	Validated solvent extraction plus gravimetric NVR and/or FTIR; report No. required 经验证的溶剂萃取+重量法和/或 FTIR; 须填写报告号	[____ mg/m ²] Report: [____]
Particulate cleanliness 颗粒洁净度	Maximum detected particle size <175 μ m; no visible contamination 最大检出颗粒尺寸<175 μ m; 无可见污染	Membrane filtration and microscopic examination, or approved equivalent method 滤膜过滤及显微镜检查或经批准的等效方法	[____ μ m] [PASS / FAIL]
Final rinse 最终漂洗	Deionized-water conductivity ≤ 50 μ S/cm and no visible residue 去离子水电导率 ≤ 50 μ S/cm 且无可见残留	Calibrated conductivity meter and visual inspection 校准电导率仪及目视检查	[____ μ S/cm] [PASS / FAIL]
Drying and purge 干燥及吹扫	No visible moisture; dry, oil-free nitrogen used 无可见水分; 使用无油干燥氮气	Dry N ₂ purge; dew point recorded where required 干燥氮气吹扫; 按要求记录露点	Dew point: [____ °C] [PASS / FAIL]

5. DRYING, CAPPING AND PACKAGING | 干燥、封口与包装

After final inspection, the oxygen-wetted path was purged with dry, oil-free nitrogen. The process connection was protected with a clean oxygen-service PTFE/PE cap or plug and the instrument was double-bagged in new clean polyethylene bags in a controlled clean area.

最终检查合格后，使用无油干燥氮气吹扫氧气接触通道；工艺接口采用洁净的氧气工况用 PTFE/PE 保护帽或堵头封闭，并在受控洁净区域内使用全新洁净聚乙烯袋进行双层密封包装。

Process connection capped 工艺接口封盖	Double-bagged 双层包装	Cleanliness label attached 洁净标签已粘贴
[YES / NO]	[YES / NO]	[YES / NO]
Cap/plug material: [_____]	Clean-area ID: [_____]	Seal/package ID: [_____]

6. CERTIFICATE SCOPE AND LIMITATIONS | 证书范围与限制

This certificate confirms the cleanliness condition of the identified unit at the time of sealing and release. It remains valid only while the protective cap and sealed package remain intact. It does not, by itself, replace the separate engineering assessment of wetted materials, internal seals, elastomers, fill fluid and design suitability for the specified LOX pressure and temperature.

本证书仅确认所列单台产品在封装放行时的洁净状态，且仅在保护帽及密封包装保持完整时有效。本证书本身不能替代针对指定液氧压力和温度，对接液材料、内部密封件、弹性体、填充液及产品适用性所进行的独立工程评估。

7. AUTHORIZATION | 授权签字

Authorized Signature / 授权签字

Company Stamp / 公司盖章

[Signature]

Name / 姓名: []

Title / 职务: Quality Assurance Manager

Date / 日期: []