

CONTROLLED METHOD CARD MASTER INDEX (AIR-TIGHTNESS REWORK)

受控气密异常分项工艺卡编码清单与工程控制规范 (中英双语对照标准版)

Master Instruction Ref / 归属主文件	WI-QC-AT-001 Rev A	Security Level / 密级	Confidential / 工厂内部受控核心
Governing Department / 归口部门	Manufacturing Engineering & QA	Target Line / 适用产线	Inflatable SUP & Kayak Assembly

1. Document Hierarchy & Two-Tier Control Architecture / 文件层级与二级管控架构

1.1 Architecture Principle: The quality management system implements a strict two-tier separation between general governance and operational execution. The General Work Instruction (WI-QC-AT-001) establishes procedural authority, quarantine protocols, approval matrices, and re-inspection gates for external/internal auditing. The Specific Method Cards (MC-RW-XX) detail exact technical steps, chemical formulations, torque specs, and curing profiles strictly on internal shop-floor terminals.

【架构原则】 实行“通用规程管体系、分项工艺卡管操作”的二级受控机制。主指导书（WI-QC-AT-001）对外/对内规范权限判定、隔离复检及放行闭环；分项工艺卡（MC-RW-XX）对内指导现场精准作业（工具扭矩、胶水配比、固化温湿度），严禁混淆。

CORE CONFIDENTIALITY & ENGINEERING RULES / 核心保密与工程执行红线

- Operators must strictly reference the active Method Card code assigned in the authorized NCR. Unregistered methods are strictly prohibited.
- Chemical ratios, solvent codes, and curing temperatures are proprietary to Qingdao Vatrads Group., Ltd. and protected under technical confidentiality.
- 操作工必须严格按 NCR 单上签署指定的受控工艺卡编码领料并施工，严禁无卡或凭经验作业。
- 具体溶剂牌号、化学固化剂配比及加热工装参数属于公司内部核心工艺机密，仅限工位受控卡显示，不向外部公开发布。

2. Master Method Card Index & Engineering Control Points / 分项工艺卡编码总清单

Card Code / 编码	Target Defect / 对应类别	Scope & Application / 工艺范围与适用部位	Critical Control Points (CCP) / 核心工程控制要点	Mandatory Sign-off / 审批要求
MC-RW-01 Valve Service	Class A Valve Leak	高压气阀总成检修与密封件更换 Valve core replacement, gasket debris cleaning, thread re-sealing	• 专用扭力扳手校准拧紧力矩 (Torque Spec) • 密封圈凹槽 100% 洁净无杂质与微尘 • 严禁损伤高压阀座内部螺牙	QC Inspector / 质检员
MC-RW-02 Valve Rim Seal	Class B Base Perimeter	阀门底座周边微漏受控加固 Valve base perimeter re-sealing & collar pressure bonding	• PVC 基底打磨去氧化层（无损纤维层） • 专用受控底胶均匀涂敷并排尽气泡 • 采用环形恒压工装夹具加压固化	QC + Engineering / 品保+工程
MC-RW-03 Surface Micro	Class C Pin-Hole Leak	非承力表面局部微孔/针孔无痕封闭 Non-structural cosmetic micro pinhole precision sealing	• 针孔周边酒精脱脂与极窄范围预处理 • 双组份耐水解聚氨酯弹性胶点胶工艺 • 严禁胶层溢出破坏原有丝印图案及EVA	QC + Engineering / 品保+工程
MC-RW-04 Rail Bonding	Class D Local Rail/Seam	侧包边/轨道局部搭接重粘 Local outer/inner rail overlap seam re-bonding	• 高风险项目：工程主管现场确认可行性 • 恒温热风预热活化胶层并严格控制温度 • 专用压轮均匀施压防止边缘翘曲应力	Eng Lead + QA Head / 工程主管+品保
MC-RW-05 Fin-Box Base	Class B/C Accessory Rim	尾鳍底座/D扣等配件边缘气密修复 Fin box patch & accessory mounting base re-seal	• 剥离微翘区域并深度清除残胶 • 配件边缘涂覆专用附着力促进剂 • 专用仿形压块均匀保压不少于规定时长	QC + Engineering / 品保+工程
MC-RW-06 Nose/Tail Seam	Class D High-Stress Zone	板头/板尾应力集中区局部密封处置 Nose/Tail curvature seam controlled intervention	• 评估板体弧度曲面应力，防止二次应力集中 • 采用高韧性抗剪切专用粘接材料 • 加长静置固化释放周期后方可充气复检	Chief Engineer / 首席工程师
MC-RW-00 Scrap / Reject	Class E/F/G Critical Defect	不可逆缺陷报废与破坏性销毁规程 Critical rupture scrap & disposal protocol	• 剪角/划板破坏性物理隔离，防止混料流出 • 填写报废处置单并归档追溯批次原材料 • 召开跨部门品质会议进行根因分析 (RCA)	Plant Manager / 工厂负责人

3. Quality Traceability & Workstation Binding / 质量追溯与工位绑定要求

3.1 Closed-Loop Record Integration: Every reworked inflatable board must have the assigned Method Card Code (e.g., MC-RW-02) explicitly recorded on both Form A (NCR & Rework Authorization) and Form B (Re-Inspection Log). Inspectors verify both the card adherence and material lot validity during final QA release.

【闭环追溯要求】 所有返工板号必须在《NCR 气密异常返工单》及《复检放行单》上清晰载明所执行的工艺卡编号（如 MC-RW-02）及胶水原料批次号。品保主管在最终放行时需核对卡号与实际工艺的一致性，确保全流程可追溯。