

KARARA MINING LIMITED

Karara Mining Limited

2.5T Electric High Reach Forklift

2.5 吨电动高叉堆高车

JUL-2025

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2.5T ELECTRIC HIGH REACH FORKLIFT 2.5 吨电动高叉堆高车

SYNOPSIS

This document has been prepared for the procurement of a 2.5-tonne capacity electric high reach forklift, designed specifically for indoor warehouse operations at the Karara Mining Project in Western Australia. The forklift must be capable of safely lifting palletised goods to heights of no less than 12 metres, with high stability, precision, and reliability in high-density racking environments. The unit must be electrically powered, environmentally friendly, and compliant with relevant Australian mining regulations, electrical standards, and workplace safety legislation. The specification outlines the full set of technical, operational, safety, documentation, and compliance requirements to ensure the selected equipment is suitable for continuous use within a mining warehouse environment. It is intended as a baseline reference for supplier evaluation, competitive tendering, equipment registration, and contractual execution.

本技术文件用于采购一台 2.5 吨电动高叉堆高车，专为卡拉拉矿业项目（西澳）仓库内物料存储作业而设计。设备须具备不低于 12 米的起升高度，能在高密度货架环境中安全、精准、稳定地搬运托盘货物。叉车必须采用电动驱动，无尾气排放，满足澳大利亚关于矿区作业、电气安全与职业健康法规的所有合规要求。本规范系统阐明了技术性能、安全功能、运行要求、合规认证及交付文档标准，作为后续供应商遴选、公开招标、设备注册及合同执行的重要依据。

Disclaimer

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2.5T ELECTRIC HIGH REACH FORKLIFT – TECHNICAL SPECIFICATION

REV	DESCRIPTION	ORIG	MANAGER APPROVAL	THIRD PARTY APPROVAL	COMMERCIAL DEPARTMENT APPROVA	DATE
A	Issued for Review	JINDONG YAN <i>Jindong Yan</i>				Jul- 25

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1 SCOPE OF APPLICATION

适用范围

This technical specification applies to the procurement of a 2.5-tonne capacity, electric high reach forklift to be used exclusively within the indoor warehouse facilities of the Karara Mining Project, located in Western Australia. The equipment is intended for racking operations requiring high lift heights (minimum 12 metres), typically for loading and retrieving palletised goods in confined aisle environments.

The forklift must be capable of safe, stable, and efficient operation on smooth indoor surfaces and must comply with all applicable Australian standards and Western Australian mining safety regulations. This specification defines all necessary technical, functional, safety, compliance, and documentation requirements to ensure the equipment is suitable for continuous use in a regulated mining warehouse environment.

本技术规范适用于为西澳卡拉拉矿业项目采购一台 2.5 吨电动高叉堆高车，该设备将专用于矿区仓库内封闭场所作业，主要任务是将托盘类货物安全地存放于或取自高位货架（最低起升高度 12 米），适应狭窄通道及高密度仓储作业。

设备必须在平整的室内地面上安全、稳定、高效运行，并完全符合澳大利亚相关标准及西澳矿区的安全与法规要求。本技术文件明确了该设备在技术性能、结构功能、安全规范、合规性及交付文档方面的全套要求，确保其满足矿区长期、规范化使用条件。

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2 DESCRIPTION OF THE 2.5T HIGH REACH FORKLIFT

2.5 吨高叉车描述

The 2.5-tonne electric high reach forklift described in this specification is a narrow-aisle, Sit-Down type forklift designed to operate in warehouse environments where vertical storage and retrieval of materials is essential. It features a telescoping mast capable of lifting loads to at least 12 meters, with advanced stability controls and operator safety systems.

This forklift will primarily serve the warehouse and logistics operations at the Karara site, including:

- Handling palletised materials on high-level racking systems.
- Facilitating efficient material flows in high-density storage areas.
- Supporting stock rotation, inventory management, and dispatch.

The forklift shall be electrically powered to ensure zero emissions, minimal noise, and compliance with indoor warehouse safety standards. It must be equipped with advanced load monitoring, fork leveling, and visibility-enhancing technologies, and be fully suitable for continuous, shift-based warehouse operation under Australian mining compliance requirements.

本规范所描述的 2.5 吨电动高叉堆高车为坐驾式、窄通道型仓储叉车，适用于在仓库环境中进行高位物料存取作业。设备配备多级门架系统，可将托盘货物提升至至少 12 米高度，并具备优良的负载稳定性及操作者安全控制功能。

该设备主要服务于卡拉拉矿区的仓储与物流作业，包括但不限于：

- 高位货架托盘物料的存储与取放；
- 高密度仓储区域内的高效物料流转；
- 支持库存轮换、库存管理与出库作业。

设备采用电力驱动，确保无尾气排放、低噪声运行，并符合室内仓库的作业安全标准。其将配置先进的载荷监测系统、货叉自动找平系统及可视化辅助设备，适用于多班次连续作业，并满足澳大利亚矿区相关的电气及设备安全法规。

KARARA MINING LIMITED**2.5T ELECTRIC HIGH REACH FORKLIFT 2.5 吨电动高叉堆高车****3 BASIC REQUIREMENTS****基本要求****3.1 Performance Parameters 性能参数**

The forklift shall be engineered for high reliability, strong structural integrity, and consistent performance under demanding mining conditions, including high dust, heat, and corrosive exposure typical of Western Australia operations.

叉车应具备高可靠性、结构强度及在严苛矿山环境下持续稳定运行的能力，能适应西澳典型的高粉尘、高温及腐蚀性工况。

It must feature:

- Certified ROPS/FOPS Level I cabin protection, in accordance with AS 2294.1 and ISO 3449, to ensure operator safety against rollovers and falling objects.
- Collision avoidance system comprising 360° surround-view cameras and radar sensors with a minimum detection range of 3 meters, compliant with AS 2359.2 safety standards.

设备必须配备：

- 经认证的 ROPS/FOPS Level I 防护驾驶室，符合 AS 2294.1 和 ISO 3449 标准，保障操作人员在翻车或坠物事故中的人身安全。
- 防撞预警系统，配备 360°环视摄像头及雷达传感器（探测距离不小于 3 米），符合 AS 2359.2 安全要求。

Item 项目	Minimum Requirement 最低要求
Lift Height 最大起升高度	12 m
Rated Load @ Max Height	≥ 1,800 kg @ 12m
Travel Speed 行驶速度	≥ 10.0 km/h (loaded/unloaded; speed adjustable)
Lift/Lower Speed 提升/下降速度	≥ 0.4 m/s (loaded)
Turning Radius 转弯半径	≤ 1.6 m
Aisle Width 通道宽度	≤ 2.9 m
Forward Visibility 盲区控制	≤ 5° (Operator forward blind spot)
Power System 电力系统	Lithium-ion battery (80V/600Ah+)

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3.2 Safety and Regulatory Compliance 安全与合规性要求

3.2.1 Structural Integrity 结构安全性

- ROPS/FOPS Certification: AS 2294.1 Level I (ROPS) + ISO 6055 Level I (FOPS)
ROPS/FOPS 结构符合 AS 2294.1 标准。
- Reinforced Anti-collision Chassis: Minimum steel thickness ≥ 8 mm
底盘配备抗撞击加固结构（钢板厚度不小于 8 mm）。

3.2.2 Operator Safety System 操作员安全系统

- Dual Redundant Load Monitoring: Real-time weight display, audible/visual overload alarms, automatic cut-off
双冗余载荷监测系统（声光报警+自动切断功能）。
- Tilt Angle Sensor: Prevent mast instability at height
门架倾角传感器（防止高位倾翻）。
- Emergency Descent System: Manual hydraulic release in case of power failure
断电情况下的紧急下降手动控制系统。
- 360° LED Warning Lights + Reversing Radar + Camera (dust shielded)
配备全方位警示灯、倒车雷达与防尘摄像系统。
- Operator Presence Detection: Automatic brake when operator leaves seat
驾驶员座位感应系统（离座即自动驻车）。
- Dual laser height positioning sensors (rack collision avoidance)
双激光高度定位器（防撞货架）
- Real-time tilt angle warning (automatic speed reduction for deviation $\geq 1^\circ$)
倾斜角度实时预警（ $\geq 1^\circ$ 偏差自动降速）
- Blue light work zone projection (AS 2359.2 compliant)
蓝光作业区域投影（符合 AS 2359.2 标准）

3.3 Electrical, Battery & Environmental Compliance 电气系统与环保合规要求

3.3.1 Battery & Drive System 电池与驱动系统

- Drive Type: Electric, ≥ 48 V AC system
驱动类型：电驱动，交流系统电压不低于 48 伏

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- Battery: Maintenance-free lithium or sealed lead-acid with BMS (Battery Management System)
电池：免维护锂电池或密封铅酸电池，配备电池管理系统（BMS）
- Runtime: ≥ 8 hours per charge
单次充电运行时间：不低于 8 小时
- Charging Time: ≤ 6 hours (standard)
充电时间：标准模式下不超过 6 小时

3.3.2 Electrical Safety 电气安全性

- Emergencies disconnect switch
配备紧急断电开关
- Automatic fire suppression system for battery thermal runaway
电池热失控自动灭火装置
- Electrical system shall comply with AS/NZS 3000:2018 and be certified by Western Power
电气系统需符合 AS/NZS 3000:2018，具备 Western Power 合规认证
- Overall equipment protection rating $\geq IP54$; control cabinet protection rating $\geq IP67$
设备整体防护等级 $\geq IP54$ ，控制柜防护等级 $\geq IP67$
- Battery Management System (BMS) shall provide overcharge, over-discharge, short-circuit, and over-temperature protection
电池管理系统具备过充、过放、短路、过温等保护
- EMC compatibility shall meet the AS/NZS IEC 61000 series standards
EMC 兼容性符合 AS/NZS IEC 61000 系列标准
- All circuits shall be equipped with fire isolation and fuse protection devices
所有电路应具备火灾隔离与熔断保护装置
- Vehicle insulation resistance $\geq 1000 \Omega/V$ (AS 3007)
全车绝缘电阻 $\geq 1000\Omega/V$ （符合 AS 3007 标准）
- Compliant with AS/NZS CISPR 11 (radio-frequency interference protection for mining environments)
通过 AS/NZS CISPR 11（矿区无线电干扰防护）

3.3.3 Noise & Environment 环境与噪音控制

- Noise level around 80 dB(A), in compliance with AS/NZS 1269.1
噪音级别 80 dB(A) 左右，符合 AS/NZS 1269.1
- Emission-free, suitable for enclosed warehouse use
无排放，适用于封闭式仓库环境

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- Hydraulic oil cooler with removable dust screen
配备可拆卸防尘网的液压油冷却器

3.4 Control Interface and Diagnostics 操作与诊断界面

- Multifunction Display: Load weight, lift height, tilt angle, fault status
多功能显示屏：显示载重、起升高度、倾斜角度和故障状态
- CAN-BUS Diagnostic Port: Compatible with mine maintenance tools
CAN-BUS 诊断接口：兼容矿区维修工具
- Fork Leveling System: With auto-centring function
货叉水平校正系统：带自动居中功能
- Speed Limiter: Adjustable via control panel
速度限制器：可通过控制面板进行调节

3.5 Environmental Adaptability Requirements 环境适应性要求

- Protection Rating: The entire vehicle electrical system shall be rated to IP67 protection level, with all wiring harnesses coated with flame-retardant insulation to ensure safe operation in harsh mining environments.
防护等级：全车电路系统须具备 IP67 防护等级，所有线束应涂覆 阻燃涂层，以确保在严苛矿区环境下的安全运行。
- Corrosion Resistance: Key components must be treated against corrosion in accordance with AS 4312:2008 to withstand exposure to dust, humidity, and salt spray typical of mining environments.
耐腐蚀性：关键部件按 AS 4312:2008 标准进行防腐处理，适应矿区潮湿、多尘和盐雾环境。
- Temperature Range: The equipment must reliably operate in ambient temperatures ranging from -20°C to +55°C.
工作温度范围：-20°C 至 +55°C，确保在极端温度条件下运行。

3.6 Warranty Period 质保期

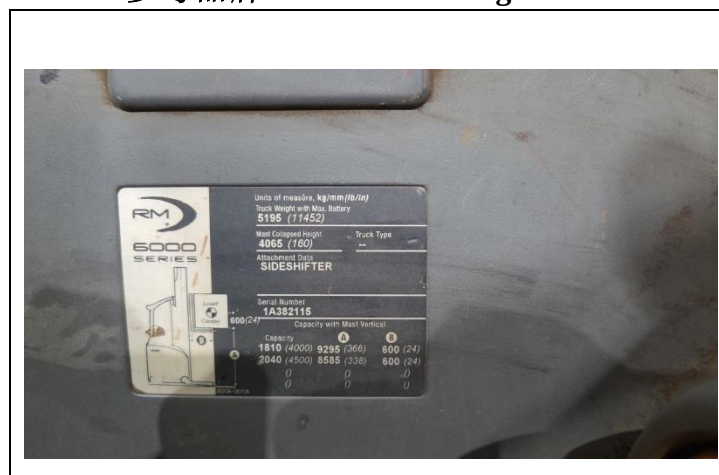
Component/System 系统/部件	Warranty Period 质保期限	Additional Notes 补充说明
Complete Vehicle 整车总成	24 months or 3,000 operating hours 24 个月或 3000 运行小时	Includes main systems such as transmission, electrical control, motor, hydraulics, battery, etc.

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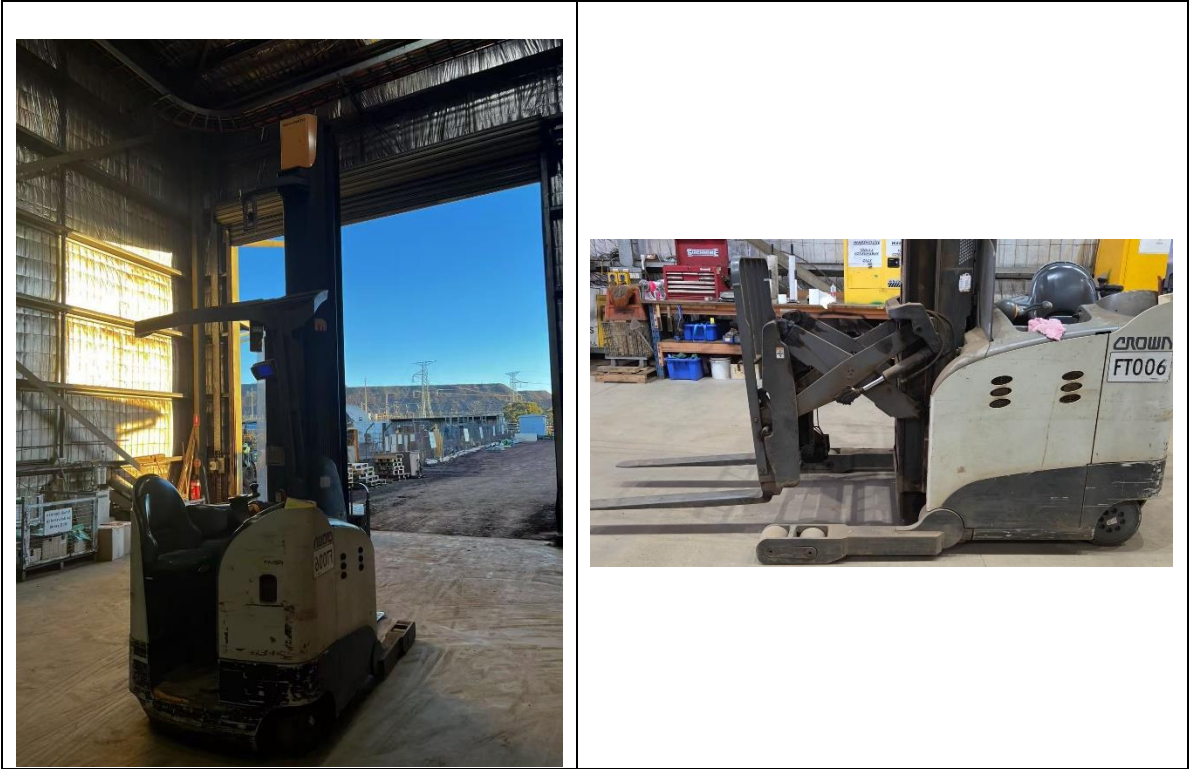
		含传动、电控、电机、液压、电池等主系统
Drive Motor & Controller 驱动电机与控制器	36 months or 4,500 operating hours 36 个月或 4500 运行小时	Must cover material and manufacturing defects 必须覆盖材料与制造缺陷
Battery Pack 电池组	36 months or 2,000 charging cycles (or SoH ≥80%) 36 个月或 2000 次充电周期 (或剩余容量≥80%)	Includes BMS system, guarantee of remaining capacity ≥80% 含 BMS 系统, 保留剩余容量≥80%保证
Hydraulic System 液压系统	24 months or 4,000 operating hours 24 个月或 4000 运行小时	Includes hydraulic pump, cylinder, valves, etc. 包括液压泵、缸、阀等
Structural Frame 主结构件	60 months or 10,000 operating hours 60 个月或 10000 运行小时	Must guarantee no fatigue cracks or structural deformation 需承诺无疲劳裂纹或结构变形
Mast Assembly 门架系统	36 months or 6,000 lift cycles 36 个月或 6000 起升循环	Includes chains, sliders, crossbeams, etc. 包括链条、滑块、横梁等部件
Attachments & Sensors 属具及传感器系统	18 months or 2,000 operating hours 18 个月或 2000 运行小时	Includes side shifters, cameras, radars, and other accessories 包括侧移器、摄像头、雷达等附加装置

3.7 Reference Brand 参考品牌: RM 6000 Single Reach Truck



Reference picture 参考图片:

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3.8 Others 其他

3.8.1 Attachment Technical Requirements 附件技术规范

To ensure versatility, safety, and suitability for high-rack pallet handling within the Karara warehouse environment, the electric high reach forklift must be equipped with the following attachments and features. All attachments shall be compatible with the mast, carriage, and control system, and shall meet or exceed the relevant Australian and ISO standards.

为确保在卡拉拉矿区仓库高位货架环境中具备良好的适应性、安全性及多功能作业能力，所供电动高叉堆高车必须配置以下附件或扩展功能，并确保与整车系统兼容。所有附件必须满足或优于相关的澳大利亚及 ISO 标准。

Attachment Type 附件类型	Technical Specification 技术参数	Application Scenario 应用场景	Standard Reference 标准依据
Side Shifter 侧移器	Hydraulic type, lateral travel ≥ 150 mm; includes load-holding valve to prevent	Precision positioning of pallets at high elevation. 高位托盘精确对位。	AS 2359

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	movement under load. 液压式，侧移行程≥150 mm，带载荷保持阀。		
Fork Tynes 货叉	constructed from wear-resistant alloy steel. 耐磨合金钢制 rated for full 2.5-ton load，满足 2.5 吨载荷	Prevent fork damage or load slippage during pallet handling. 提高叉臂强度，防止滑落。	AS 2359
Load Weighing System 载荷监测系统	Accuracy ±1%; real-time display; includes CoG (Centre of Gravity) tracking and auto cutoff on overload. 精度±1%，具重心动态追踪与超载自动切断功能。	Prevent overloading and tipping in high-lift conditions. 防止高位超载与倾翻。	AS 2359
High-Reach Camera System 高位货叉摄像系统	Dust-proof IP67 camera with mast-integrated monitor. Mast height calibrated. 防尘摄像头（IP67），门架集成高度校准。	Enhanced visibility when stacking pallets above 10 m. 提高高位堆垛可视性。	AS/NZS IEC 60947.1:2015
Reversing Radar + Camera 倒车雷达+摄像头	Waterproof/dustproof (IP67); detection range ≥3 m; wide-angle view; integrated with in-cab display. 防水防尘，≥3 米探测距离，广角显示。	Enhances safety during reversing or operation in narrow aisles. 提高狭窄通道倒车与作业安全。	AS/NZS IEC 60947.1:2015
Automatic Lubrication System 自动润滑系统	Covers mast rollers, reach mechanism, and steering pivot points (≥6 points). 润滑门架滚轮、前移机构、转向轴（不少于 6 个润滑点）。	Extend service life; reduce manual maintenance. 减少人工保养，提高寿命。	ISO 4406 (Lubrication cleanliness)
Quick-Attach Interface 快换属具接口	Fork carriage compliant with ISO 2328; supports clamps, rotators, and custom attachments. 接口符合 ISO 2328，兼容多种属具。	Enable future tool flexibility (e.g. drum clamp, push-pull). 满足多种非标属具需求。	ISO 2328 (Mounting interface)
Cabin Protective Mesh 驾驶室防护网	High-strength steel mesh; mesh size ≤50 mm; impact resistance ≥120 J. 高强度钢网，孔径≤50 mm，抗冲击≥120 焦耳。	Protection against falling objects during rack loading. 防止高位堆放时物料坠落伤人。	AS 4024.703 (Hazard area guarding)
LED Work Lighting System LED 工作灯系统	Front and rear LED, ≥3000 lumens, IP69K; colour temperature 5000K ±10%. 前后 LED 灯，≥3000 流明，IP69K 防护，色温 5000K±10%。	Improve visibility in low-light warehouse conditions. 提高低照度仓库环境下的作业安全。	AS 1319

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Fire Extinguisher Mount 灭火器安装支架	Compatible with 5kg ABE-type fire extinguisher (AS 1851 compliant). 可安装 5 公斤 ABE 型干粉灭火器（符合 AS 1851）。	Mandatory for WA mine use. 符合矿区火灾安全要求。	AS 1841
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3.8.2 Reverse Alarm 倒车警报

- AS 1319:1994 (Acoustic signals for mobile machinery).
AS 1319:1994（移动机械声响信号）
- The reverse alarm must emit a pulsed signal of 105–110 dB(A) at a distance of 1 meter, clearly distinguishable from background noise, in compliance with AS/NZS 1269.3:2005.
1 米距离处 105–110 dB(A)脉冲报警，声频与环境噪音显著区分（符合 AS/NZS 1269.3:2005）。
- Distinctive dual-tone pulse pattern is required, such as 0.5 seconds on / 0.5 seconds off.
特征性间歇双音调（如 0.5 秒开/0.5 秒关）。

3.8.3 Rotating Warning Light 旋转警示灯

- AS/NZS 1906.4:2010 (Retroreflective devices for heavy vehicles).
AS/NZS 1906.4:2010（重型车辆逆反射装置）
- Must provide 360-degree visibility with intensity of at least 1.0 candela/lux/m².
360 度可见，亮度≥1.0 坎德拉/勒克斯/平方米。
- Amber in colour, meeting Class RB requirements.
琥珀色（RB 级）。
- Surface use: Must meet IP67 rating with additional anti-dust coating.
地面使用：IP67 防护等级+防尘涂层

3.8.4 "Etc." Items (Critical Additions for WA Mines) “其他”项目（西澳矿山关键补充项）

- Seatbelts 安全带
AS 2593:2021 (Seatbelt systems for earth-moving machinery).
AS 2593:2021（工程机械安全带）。

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- Lighting 照明
ISO 12.5508:2017, colour temperature 5,000K $\pm 10\%$.
ISO 12.5508:2017 (色温 5,000K $\pm 10\%$)。
WA Mandatory: LED work lights must be installed at both front and rear, with an initial luminous output of $\geq 3,000$ lumens, and rated to IP68K for high-pressure cleaning environments.
西澳强制要求：前后 LED 工作灯（初始光通量 $\geq 3,000$ 流明，IP68K 防护等级）。

3.8.5 Battery Requirements and Standards

- Battery must comply with UN38.3 testing report and IEC 62619 certification.
电池需符合 UN38.3 测试报告及 IEC 62619 认证。
- Battery must have approval and licensing from EnergySafety WA (Western Australia Energy Safety Authority).
电池需取得西澳能源局（EnergySafety WA）的准入许可。
- Battery recycling agreement is required.
需签订电池回收协议。
- Proof of cooperation with Australian compliant recycling companies (in accordance with EPHC 2023) must be provided.
提供与澳洲合规回收商的合作证明（符合 EPHC 2023 标准）。

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4 TRANSPORTATION, INSTALLATION, COMMISSIONING, AND ACCEPTANCE 运输、安装、调试与验收

4.1 Transportation 运输

4.1.1 Ocean Freight & Customs Clearance 海运与清关

- The supplier shall arrange sea transportation to Western Australia Port and provide real-time access to a logistics tracking system.
- Suppliers must complete Australian biosecurity inspections, including AQIS BMSB treatment, and submit customs duty exemption applications under Section 12.53 of the Mining Act 1978 (Mining Equipment Exemption).
- 供应商应安排海运至西澳港口并提供物流追踪系统的实时访问权限。
- 必须完成澳大利亚生物安全检验（包括 AQIS BMSB 处理），并根据《1978 年采矿法》第 12.53 条提交采矿设备关税豁免申请。

4.1.2 Inland Transport 内陆运输

- Main Roads WA Oversize Transport Permit must be obtained, including full dimensional and weight details.
- Transport route must avoid Aboriginal heritage areas per the Aboriginal Heritage Act 1972, with submission of route plans.
- 须取得 Main Roads WA 颁发的超限运输许可（包括设备尺寸与重量说明）。
- 运输路线应避开土著文化保护区，并根据《1972 年土著文化遗产法》提交路线图纸。

4.2 Installation 安装

- The supplier shall supervise unloading and mechanical positioning of the equipment at the designated mine site installation area.
- Lifting operations must follow AS 1418.8-2008 for loader lifting points and AS 4991-2004 for lifting devices.
- Electrical connections must comply with AS/NZS 3000:2018 and be inspected by Western Power prior to energisation.
- 供应商需负责监督设备在矿区指定安装区域的卸载与就位。
- 吊装作业需符合《AS 1418.8-2008 装载机吊点要求》及《AS 4991-2004 吊装装置》标准。

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- 电气连接须符合《AS/NZS 3000:2018》规范，并由 Western Power 检验通过后方可通电。

4.3 Commissioning 调试

- The equipment shall undergo initial commissioning including hydraulic system validation, engine parameter calibration, and safety interlock checks.
- Real-time emission interface shall be connected to the mine monitoring system for verification.
- Mechanical guarding for all rotating parts must be in place as per *Work Health and Safety (Mines) Regulations 2022*, Clause 47.
- 设备需完成初始调试，包括液压系统验证、发动机参数校准及安全联锁测试。
- 实时排放数据接口应接入矿区监控系统并完成验证。
- 所有旋转部件必须安装机械防护罩，符合《2022 年矿山健康与安全条例》第 47 条。

4.4 Acceptance 验收

In addition to complying with applicable Australian standards and certifications, the skid steer loader must also meet the regulatory requirements of the state government where the mine is located. These include but are not limited to: the *Product Emissions Standards Act 2017*, the *Product Emissions Standards (Customs) Charges Act 2017*, and the *Product Emissions Standards (Excise) Charges Act 2017*.

该滑移装载机除需满足澳大利亚相关标准及认证外，还必须符合矿区所在地州政府的法规要求，包括但不限于：《2017 年产品排放标准法》、《2017 年产品排放标准（海关）收费法》及《2017 年产品排放标准（消费税）收费法》等。

Factory Acceptance Test (FAT) 工厂验收	• Tipping Load Test (ISO 14397-1) • Hydraulic Peak Pressure Test $\geq 110\%$ of design pressure	FAT report signed by third-party laboratory (English) 第三方实验室签署的英文报告
Site Acceptance Test (SAT)	• 72-hour continuous operation test (≤ 1 failure)	SAT log + compatibility certificate

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现场验收	Safety Function Verification	试运行记录+系统兼容性证明
Regulatory Certification 合规认证	- ROPS/FOPS compliance - Noise level ≤ 82 dB(A) - Emission Compliance	Certificates issued by WorkSafe WA- authorised body 由 WorkSafe WA 授权机构出具的合规证书

4.5 Notes 说明

4.5.1 Third-Party Verification Framework 第三方验证框架

Verification Authority 验证机构资质

- Must hold NATA accreditation (ISO/IEC 17025) and WorkSafe WA authorization for mining equipment certification.
需持有 NATA 认证 (ISO/IEC 17025) 及 WorkSafe WA 矿山设备授权。
- Scope includes Design review, FAT/SAT witnessing, compliance auditing.
服务范围涵盖：设计审查、工厂/现场验收见证、合规审计。

4.5.2 Contractual Obligations 合同义务

1. Third Party as Karara's Technical Agent 第三方作为卡拉拉技术代理

- Review all design documents for AS 1418.10:2025 compliance.
审核全部设计文件是否符合 AS 1418.10:2025。
- Hold veto power on SAT approval if safety standards are breached.
若违反安全标准，对 SAT 验收拥有一票否决权。

2. Deliverables 交付物

- Signed FAT/SAT certificates with NATA logo.
签署带 NATA 标识的 FAT/SAT 证书。

Note: For warehouse-based electric forklifts not classified as prescribed plant, submission of a DMIRS ROVER registration package is not required. However, this may be requested by the site manager on a case-by-case basis.

说明：本仓库用电动叉车不属于需注册的矿用设备，原则上无需提交 DMIRS ROVER 注册资料。但如矿区管理人员要求，供应商仍须配合准备简化注册包。

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3. Cost & Liability 费用与责任

- Verification costs borne by supplier (per WA Mines Regulation 12.5A).
验证费用由 供应商承担（依据西澳矿山条例 12.5A 条）。
- Third party liable for negligent certification (Civil Liability Act 2002).
第三方对 认证过失 承担法律责任（《2002 民事责任法》）。

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5 DOCUMENTATION AND LABELLING 文档与标识

All product nameplates and labels shall be in English. All relevant technical documentation shall be provided in English. All products shall be accompanied by English labels that comply with regulatory requirements.

所有产品的铭牌、标识均应用英文标示。所有相关的技术文档均应提供英文版本。所有产品均应附带符合法规要求的英文标识。

5.1 Nameplates & Labels 铭牌与标签

All nameplates and safety labels shall be written in 100% English, in compliance with Chapter 2.6 of the *Competition and Consumer Act 2010*.

语言：

所有铭牌及安全标签必须为 100%英文，符合《2010 年竞争与消费者法》第 2.6 章要求。

Mandatory Contents:

- Equipment serial number and manufacture date / 设备序列号与出厂日期
- Electrical safety rating (e.g. IP67 + AS/NZS 3000:2018) / 电气安全等级（如 IP67 + AS/NZS 3000:2018）
- ROPS/FOPS certification number (if applicable) / ROPS/FOPS 认证编号（如适用）
- Emission compliance (if applicable) / 排放合规信息（如适用）
- Operator warning and safety labels / 操作警告及安全标签

Durability / 耐久性：

All nameplates must be laser-etched on corrosion-resistant stainless steel and meet salt spray resistance requirements of AS 4312:2008.

所有铭牌须采用不锈钢激光蚀刻工艺，具备抗盐雾腐蚀性能，符合 AS 4312:2008 要求。

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5.2 Technical Documentation 技术文档

All official documentation shall be written in English. Chinese versions may be included for reference only.

所有正式技术文件必须为英文版本，中文版本可作参考使用。

Submission Timeline:

- Draft version: Due at least 45 days before Factory Acceptance Test (FAT)
- Final version: Due 7 days before delivery

交付时效:

- 初稿：需在工厂验收（FAT）前 45 天提交
- 终稿：需在交付前 7 天提交

5.3 Required Document List 核心文件清单

Document Type 文档类型	Additional Compliance Requirement 新增合规要求	Reference 依据
Declaration of Conformity 符合性声明	Must be signed by a licensed Australian engineer, covering AS/NZS 3000, ISO 3471, AS 5062:2022	<i>Work Health and Safety Act 2020</i>
Factory Acceptance Procedure 工厂验收程序	Must include video of tipping load test (ISO 14397-1) and hydraulic peak pressure curve	<i>DEMIRS MDG 41</i>
Inspection Report 检验报告	Corrosion coating to be tested via $\geq 1,000$ -hour salt spray test per AS 4312.5:2008	<i>WA Mine Corrosion Guidelines</i>

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Noise Test Report 噪音测试报告	Must be issued by WorkSafe WA accredited lab and include full-condition sound profiles (unloaded/loaded/steering)	AS/NZS 12.569.1:2005
IOM Manual 使用维护手册	Dedicated section on maintenance in high-dust WA environments (HEPA filter change cycle ≤250 hours)	AS 2985:2009
Maintenance Strategy 维护策略	Include critical component life prediction based on AS 4457.1-2018 mining equipment lifecycle model	AS 4457.1

5.4 Specific Supplementary Clauses 补充条款

5.4.1 Electrical Safety Certification 电气安全认证

All electrical schematics must bear a Western Power compliance stamp in accordance with WA Electricity Regulations 1991.

所有电气图纸须加盖 Western Power 合规印章，符合《1991 年西澳电气法规》要求。

5.4.2 Documentation Upload Obligations 文件注册义务

Note: This electric forklift is used exclusively in a warehouse and is not classified as prescribed plant under WA mining regulations. Therefore, upload to the DMIRS ROVER system is not required.

说明：本电动高叉专用于仓库作业，不属于《西澳矿区设备注册规范》所规定的“需注册设备”，因此无需上传至 DMIRS ROVER 系统。

However, Karara reserves the right to request documentation upload for tracking or internal compliance if needed.

但卡拉拉矿业保留在必要时为合规追踪或内部登记而要求文档上传的权利。

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The supplier must possess ISO 9001 Quality Management System certification.

供应商需具备 ISO9001 质量管理体系认证。

This specification ensures that the design, manufacturing, installation, and commissioning of the skid steer loader fully comply with the safety and environmental regulations of the Australian mining area. For any other unspecified requirements related to design, installation, certification, etc., the supplier must clarify with the owner's senior project engineer or technical personnel of equivalent or higher qualification.

本规范确保滑移装载机的设计、制造、使用全面符合澳大利亚矿区的安全和环保法规。其它未尽的设计、安装、认证等的要求供应商须与业主方项目高级工程师或以上资格的技术人员澄清。

The equipment needs to comply with Australian standards and Australian mining area usage standards, including but not limited to:

该设备需符合澳大利亚相关标准及澳大利亚矿区使用标准，包括但不限于：

Document No. / 文件编号	Document Title / 文件名称
AS 4024:2019	Safety of machinery – General principles
AS 2294	Protective structures for earth-moving machinery
ISO 3471	Roll-over protective structures (ROPS) – Performance and testing
ISO 3449	Falling-object protective structures (FOPS) – Performance and testing
AS/NZS 3000:2018	Electrical installations – Wiring Rules
AS 3820	Essential safety requirements for electrical equipment
AS/NZS 3760	In-service safety inspection and testing of electrical equipment
ISO 20474-3	Safety requirements for earthmoving machinery – Part 3: Loaders
AS 1418.8:2008	Cranes, hoists and winches – Special provisions for loader lifting operations
AS 4772:2008	Quick hitches for excavators and backhoe loaders
AS 5062:2022	Fire prevention for mobile and transportable equipment

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	Mines Safety and Inspection Act 1994 (WA)
	Work Health and Safety (Mines) Regulations 2022 (WA)

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7 KML STANDARD 卡拉拉设备标准列表

Document No. 文件编号	Document Title 文件名称
CORP-GE-SPC-1001_1	EQUPMENT LABELLING SPECIFICATION
CORP-GE-SPC-1002_0	SPECIFICATION FOR PACKING, MARKING AND DOCUMENTATION REQUIREMENTS
CORP-GE-SPC-1004_1	SPECIFICATION FOR SURFACE TREATMENT OF STRUCTURAL STEELWORK AND PIPEWORK
CORP-GE-SPC-1005_0	TECHNICAL SPECIFICATION FOR SHOP DETAILING OF STRUCTURAL AND MECHANICAL ITEMS
CORP-EL-SPC-1008_0	SPECIFICATON FOR ELECTRIC MOTORS
CORP-IN-SPC-1001_0	SPECIFICATION FOR GENERAL INSTRUMENTS
CORP-IN-SPC-1002_0	SPECIFICATION FOR CONTROL AND INSTRUMENTATION FOR PACKAGES
CORP-IN-SPC-1007_0	SPECIFICATION FOR INSTRUMENTATION INSTALLATION
CORP-IN-SPC-107_0	SPECIFICATION FOR CONTROL SYSTEM HARDWARE
CORP-IN-SPC-1018_0	SPECIFICATION FOR CONTROL SYSTEM SOFTWARE