



DUCHENG Service Portfolio

Lifecycle Electrical Services



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About DUCHENG

Full-Cycle Electrical Service Provider for industrial plants, specializing in multi-brand VFD lifecycle services.

14
SERVICE LOCATIONS

100+
FIELD ENGINEERS

13+
YEARS IN SERVICE

500,000+
VFDS SERVICED

— PHILOSOPHY

"Exceptional Service Creates Core Value"

FAST · PROFESSIONAL · RESPONSIBLE

■ BRANDS WE SERVICE

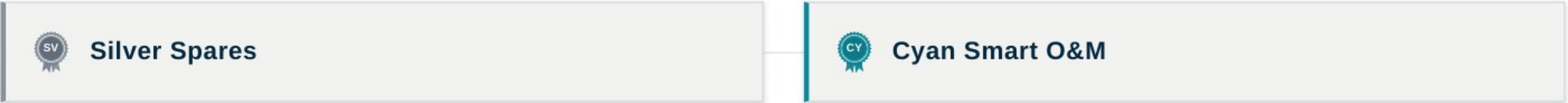


■ SELECTED CLIENTS & PARTNERS

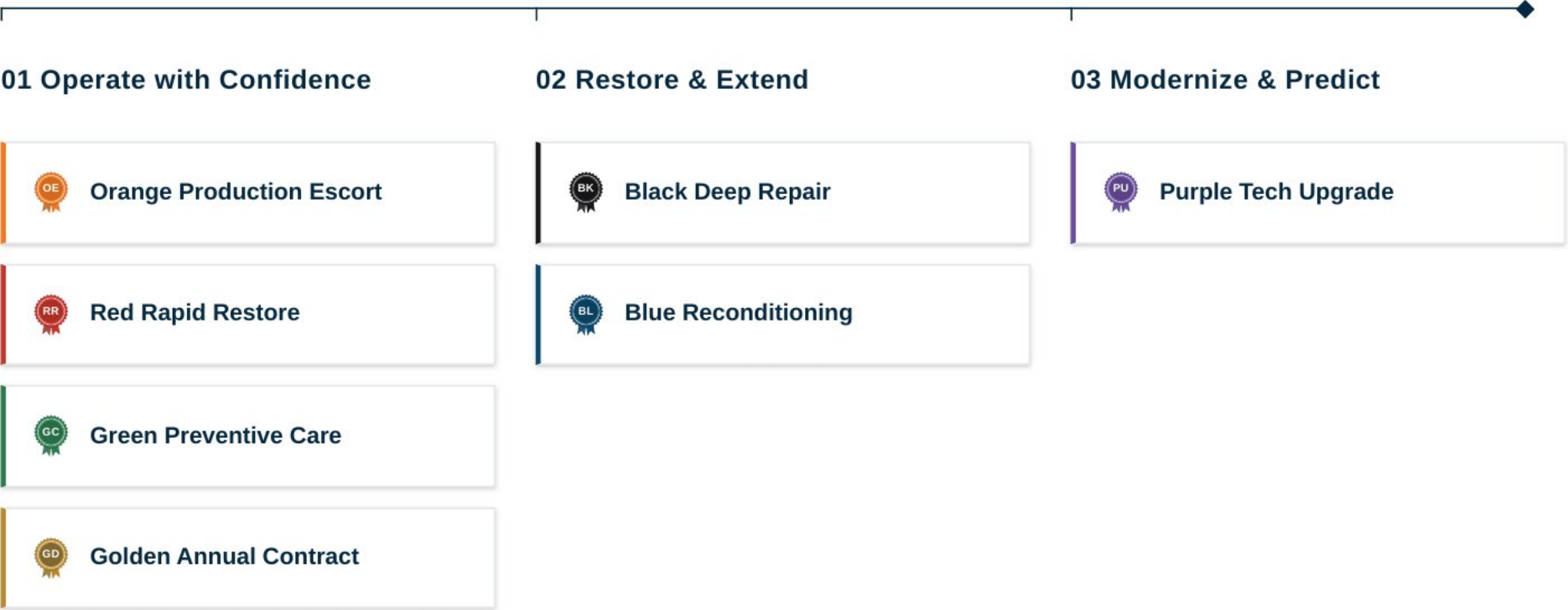


Lifecycle Service Portfolio

LIFECYCLE-WIDE
SUPPORT

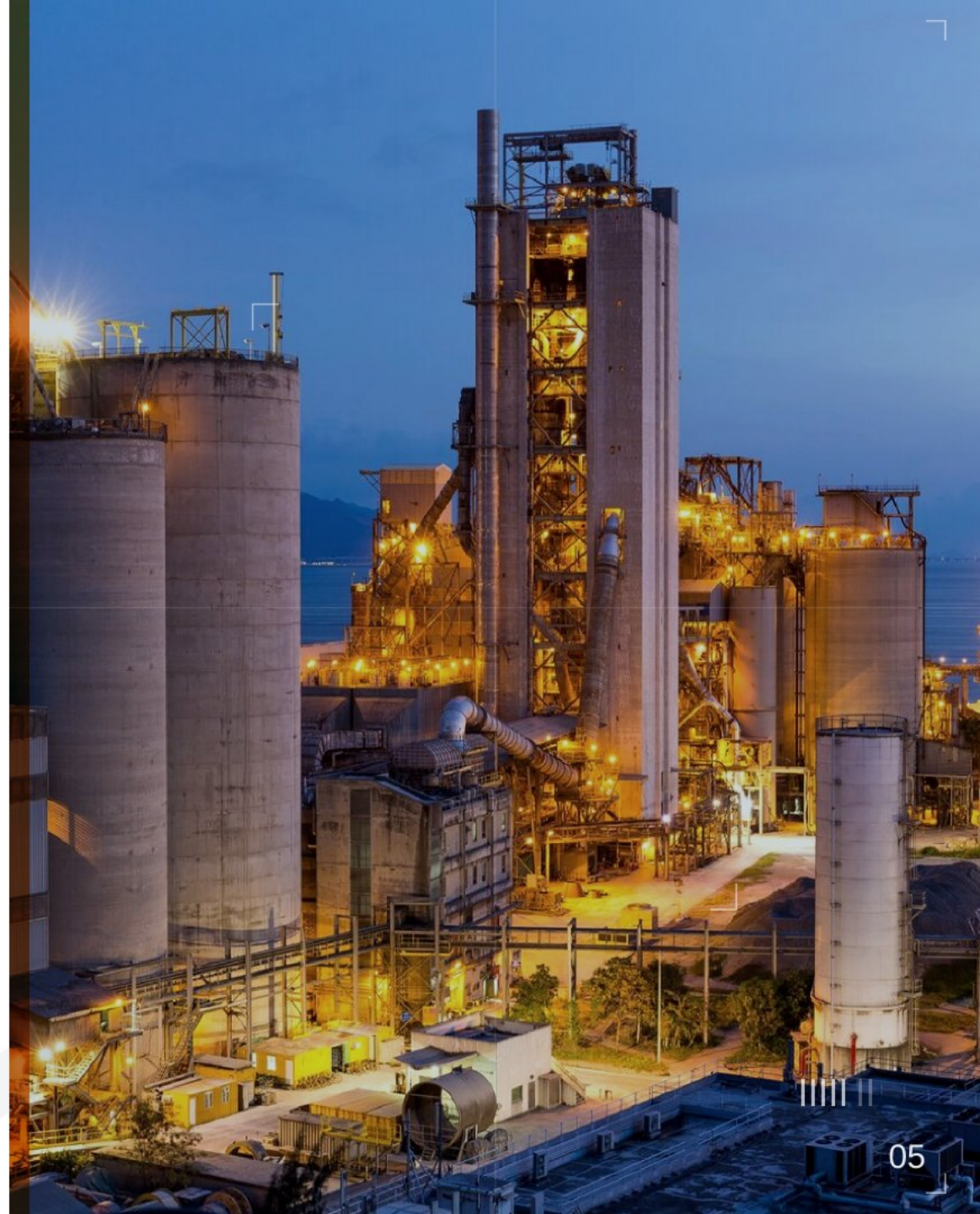


PHASE-SPECIFIC
SERVICES



Operate with Confidence

- 01 Orange Production Escort
- 02 Red Rapid Restore
- 03 Green Preventive Care
- 04 Golden Annual Contract



Orange Production Escort

Engineers on-site hot-standby during critical production windows with immediate response to anomalies.



WHEN TO USE

- 01 Plant start-up or restart phases
- 02 Peak production periods
- 03 Critical asset protection

CORE VALUES

Immediate anomaly response +

Immediate on-site anomaly response +

Continuous operational safety +

DELIVERABLES

Standby log / Anomaly handling report / Risk assessment



EXECUTION PHASES

- 1 Window definition
- 2 Static checks
- 3 On-site hot standby
- 4 Patrol & monitoring
- 5 Window handover

SUDDEN FAULT → RED RAPID RESTORE

HIDDEN DEFECTS FOUND → GREEN PREVENTIVE CARE

Red Rapid Restore

Structured on-site diagnosis, fault localization, and controlled restart to minimize unplanned downtime.



■ WHEN TO USE

- 01 Sudden trip or fault
- 02 Unplanned downtime
- 03 Fault code requires expert triage

■ CORE VALUES

Rapid on-site diagnosis

+

Controlled safe restoration

+

Clear escalation path to workshop repair

+

■ DELIVERABLES

Diagnosis record / Restoration report / Follow-up recommendation



EXECUTION PHASES

1 Log & fault-code extraction

2 On-site diagnosis & localization

3 Controlled repair

4 Power-up verification

BEYOND ON-SITE HANDLING → BLACK DEEP REPAIR

PARTS NEEDED → SILVER SPARES

Green Preventive Care

Condition inspection, thermal imaging, and deep cleaning during planned shutdown windows.



■ WHEN TO USE

- 01 Scheduled plant shutdown
- 02 Pre-season maintenance
- 03 Routine asset health check

■ CORE VALUES

Thorough thermal assessment	+
Deep contamination removal	+
Validated insulation integrity	+

■ DELIVERABLES

Thermal imaging report / Maintenance record / Condition assessment



EXECUTION PHASES	1	Condition & thermal inspection	2	Safety isolation
	3	Deep cleaning & retightening	4	Insulation testing
	5	Report delivery		
	AGING FOUND → BLUE RECONDITIONING		PART OF CONTRACT → GOLDEN ANNUAL CONTRACT	

Golden Annual Contract

Annual framework agreement combining
planned maintenance with priority response.



■ WHEN TO USE

- 01 Long-term O&M planning
- 02 Need for predictable maintenance budget
- 03 Priority SLA requirements

■ CORE VALUES

Bundled service efficiency +

Priority emergency response +

Comprehensive lifecycle management +

■ DELIVERABLES

Annual maintenance plan / Execution reports / Lifecycle optimization suggestions



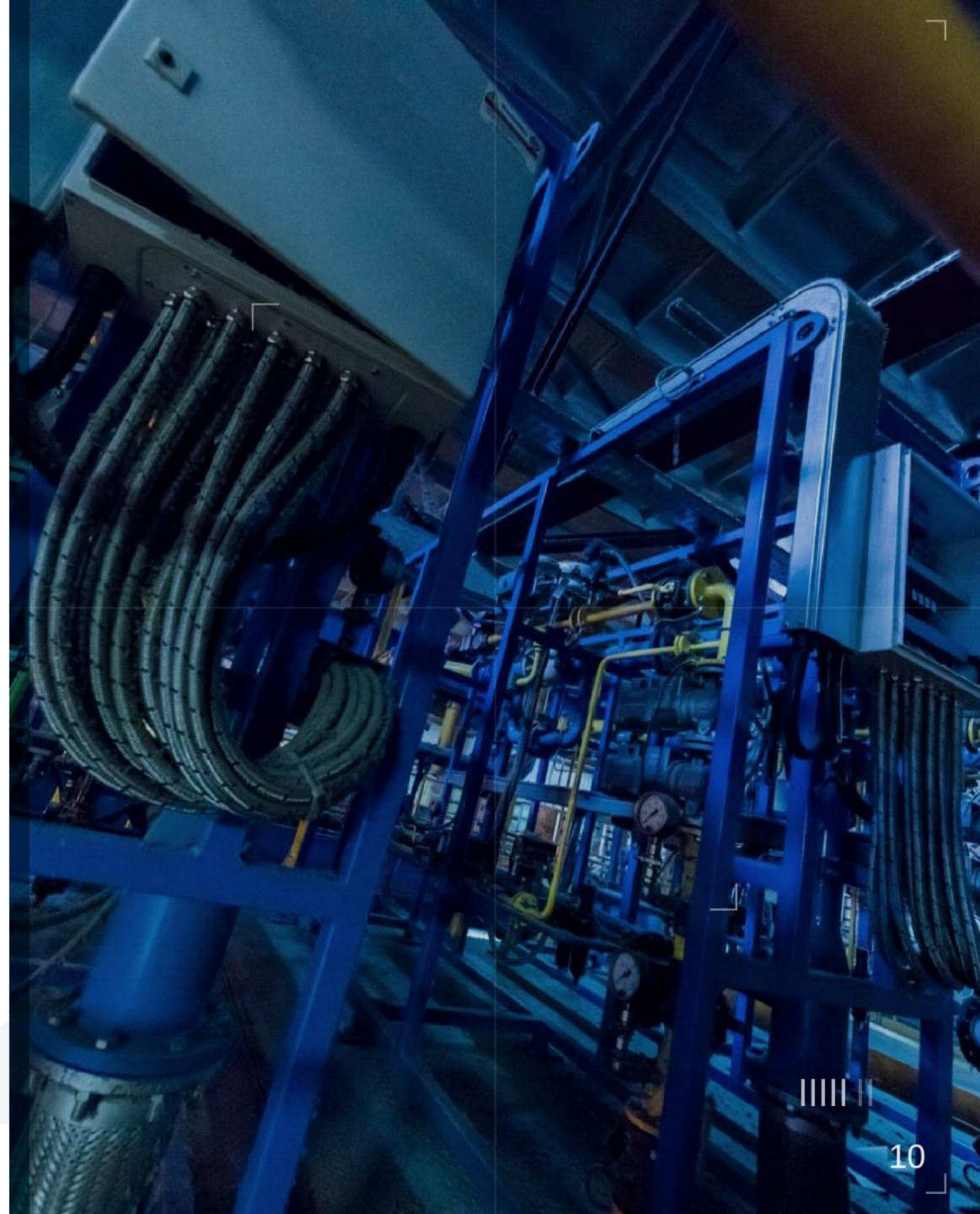
EXECUTION PHASES

- | | |
|----------------------|---------------------------------|
| 1 Annual planning | 2 Pre-shutdown backup |
| 3 Isolated overhaul | 4 Consumables batch replacement |
| 5 Restart validation | |

BUNDLES ORANGE/RED/GREEN SERVICES INTO ONE COORDINATED ENTRY POINT.

Restore & Extend

- 01 Black Deep Repair
- 02 Blue Reconditioning
- 03 Silver Spares



Black Deep Repair

Workshop-level, module-level, and component-level deep repair processes dedicated to core electrical assets.

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Variable Frequency Drives

P.13

Human Machine Interfaces

P.14

Servo Drives

P.15

Servo Motors

COMMON EXECUTION PHASES

- 01 Teardown & inspection
- 02 Component-level repair
- 03 Circuit reconstruction
- 04 Full-load bench test verification
- 05 Handover



Black Deep Repair — VFD

Dedicated VFD repair line for multi-brand power and control modules.



■ WHEN TO USE

- 01 Catastrophic drive failure
- 02 Control board burn-out
- 03 Power module explosion

■ CORE VALUES

Component-level troubleshooting +

Original spec compliance +

Rigorous load testing +

■ DELIVERABLES

Inspection report / Repair documentation / Test certificate



EXECUTION
PHASES

- | | |
|--------------------------|-------------------------------------|
| 1 Teardown & inspection | 2 Component-level repair |
| 3 Circuit reconstruction | 4 Full-load bench test verification |
| 5 Handover | |

RELIES ON SILVER SPARES FOR IMMEDIATE SITE SWAP WHILE UNIT IS REPAIRED.

Black Deep Repair — HMI

Industrial HMI and panel repair covering display, touch interface, and mainboard.



■ WHEN TO USE

- 01 Touch screen unresponsiveness
- 02 Display failure or artifacts
- 03 Communication port damage

■ CORE VALUES

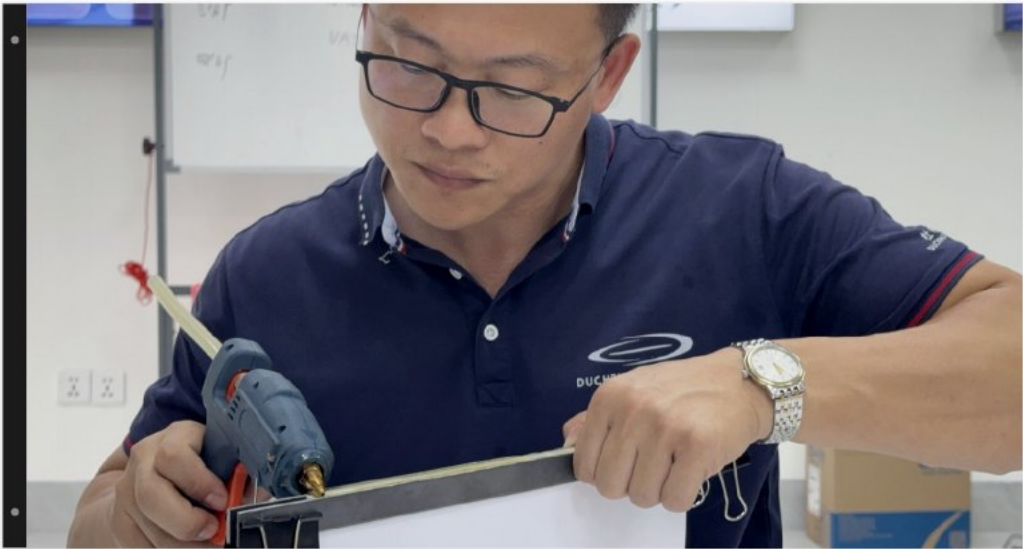
Precision optical bonding +

Mainboard chip replacement +

Data extraction & backup +

■ DELIVERABLES

Inspection report / Repair documentation / Test certificate



EXECUTION PHASES

- | | |
|--------------------------|-------------------------------------|
| 1 Teardown & inspection | 2 Component-level repair |
| 3 Circuit reconstruction | 4 Full-load bench test verification |
| 5 Handover | |

DATA PRESERVED ACROSS REPAIRS

INTEGRATES WITH PURPLE TECH UPGRADE IF OBSOLETE

Black Deep Repair — Servo Drive

Specialized servo drive repair with
loaded test bench verification.



■ WHEN TO USE

- 01 Axis control failure
- 02 Positioning errors
- 03 Power stage faults

■ CORE VALUES

Advanced loop tuning +

High-precision validation +

Multi-brand expertise +

■ DELIVERABLES

Inspection report / Repair documentation / Test certificate



EXECUTION
PHASES

- | | |
|--------------------------|-------------------------------------|
| 1 Teardown & inspection | 2 Component-level repair |
| 3 Circuit reconstruction | 4 Full-load bench test verification |
| 5 Handover | |

PAIRED WITH SERVO MOTOR REPAIR FOR COMPLETE AXIS RESTORATION.

Black Deep Repair — Servo Motor

Comprehensive servo motor restoration including rewinding, encoder alignment, and dynamic balancing.



■ WHEN TO USE

- 01 Bearing failure or vibration
- 02 Stator winding burnout
- 03 Encoder feedback loss

■ CORE VALUES

Precision dynamic balancing +

Accurate encoder phasing +

OEM-grade rewinding +

■ DELIVERABLES

Inspection report / Repair documentation / Test certificate



EXECUTION PHASES

- | | |
|--------------------------|-------------------------------------|
| 1 Teardown & inspection | 2 Component-level repair |
| 3 Circuit reconstruction | 4 Full-load bench test verification |
| 5 Handover | |

WORKS SEAMLESSLY WITH SERVO DRIVE REPAIRS.

Blue Reconditioning

On-site cleanroom whole-unit reconditioning of MV/LV drives, extending asset life without return-to-factory.



■ WHEN TO USE

- 01 Severe environmental contamination
- 02 End of normal asset lifecycle
- 03 High return-to-factory logistics cost

■ CORE VALUES

In-situ cleanroom setup

+

Module-level remanufacturing

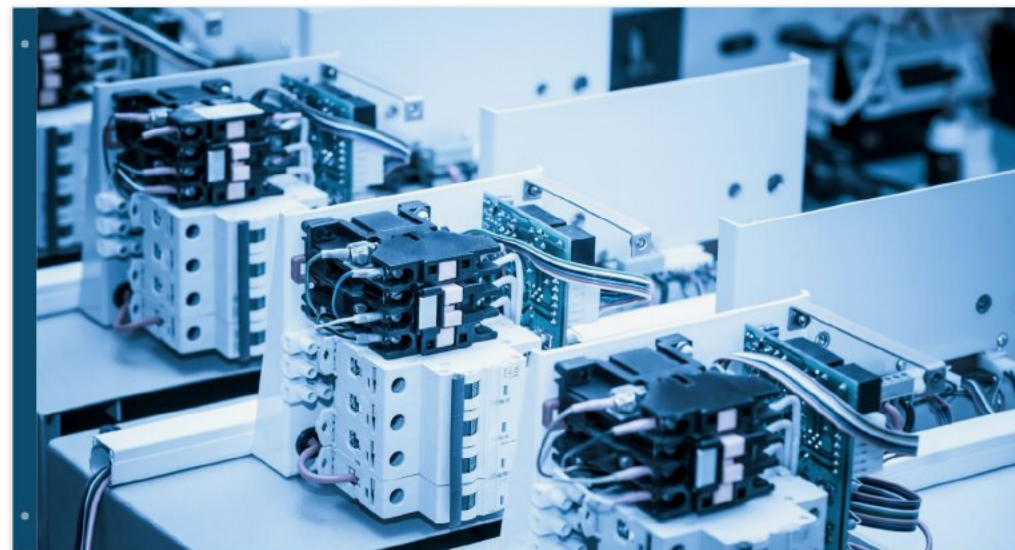
+

Significant life extension

+

■ DELIVERABLES

Reconditioning report / Life extension certificate / Performance baseline data



EXECUTION PHASES

- 1 Dynamic assessment
- 2 On-site cleanroom setup
- 3 PEU module-level remanufacturing
- 4 System reassembly
- 5 Full-load validation

ALTERNATIVE TO IMMEDIATE REPLACEMENT

SUPPORTS GOLDEN ANNUAL CONTRACTS

Silver Spares

Shared spares pool and closed-loop exchange enabling on-site hot swaps while failed units are remanufactured.



■ WHEN TO USE

- 01 Critical asset failure
- 02 Downtime window too short for workshop repair
- 03 Strategic inventory optimization

■ CORE VALUES

Rapid on-site replacement +

Closed-loop circular economy +

Capital expenditure reduction +

■ DELIVERABLES

Spares dispatch note / Swap execution record / Core recovery receipt



EXECUTION PHASES

- | | |
|--------------------------------------|--------------------|
| 1 Requirement submission | 2 Digital matching |
| 3 Outbound verification | 4 On-site hot swap |
| 5 Reverse recovery & remanufacturing | |

FAILED UNITS ENTER BLACK/BLUE REPAIR PROCESSES FOR REMANUFACTURING.

Modernize & Predict

01 Purple Tech Upgrade

02 Cyan Smart O&M



Purple Tech Upgrade

Modernization of legacy control systems and drives via hardware replacement and network integration.



■ WHEN TO USE

- 01 Equipment obsolescence
- 02 Need for modern fieldbus
- 03 Production capacity expansion

■ CORE VALUES

Seamless system migration

+

Minimal production impact

+

Enhanced connectivity

+

■ DELIVERABLES

Migration plan / As-built drawings / Acceptance certificate



EXECUTION PHASES

- 1 System audit
- 2 Solution design
- 3 Hardware replacement
- 4 Network integration
- 5 Commissioning & acceptance

ENABLES SUBSEQUENT DEPLOYMENT OF CYAN SMART O&M.

Cyan Smart O&M

Edge gateway and cloud platform integration
for remote monitoring and intelligent O&M.



■ WHEN TO USE

- 01 Transition to predictive maintenance
- 02 Multi-site asset management
- 03 Need for real-time condition insights

■ CORE VALUES

Seamless IT/OT integration

+

Continuous asset tracking

+

Data-driven decision making

+

■ DELIVERABLES

Platform access credentials / Deployment documentation / Periodic insights report



EXECUTION PHASES

1 Edge gateway
deployment

2 Fieldbus data
acquisition

3 Cloud data
modeling

4 Permissions &
security setup

5 Continuous
monitoring

SPANS ALL SERVICES AS THE FOUNDATIONAL DIGITAL LAYER.

Standardized Delivery

STANDARD WORKFLOW / RIGOROUS EXECUTION

01

ASSESS

Initial evaluation of site conditions and requirements.

02

PLAN

Detailed method statement and safety preparation.

03

EXECUTE

Structured implementation by certified engineers.

04

VERIFY

Rigorous testing and power-up validation.

05

HANDOVER

Delivery of operational system and documentation.

Let's **Keep** Your **Plant** Running



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