ArmCoil

Delivering Power Solutions through Transformers & Substations

ACEM GREENCORE SERIES

ACEM

GreenCore Series

www.armcoil.co.za

Introduction to the GreenCore Product Line

The GreenCore Series is one of ArmCoil's flagship products, purpose-built to support the rapidly expanding renewable energy and sustainable power infrastructure sectors across South Africa and beyond.

Grounded in ArmCoil's long-standing expertise in transformer engineering, the GreenCore range integrates technical excellence, environmentally conscious design, and renewable-specific performance requirements to meet the unique demands of solar and battery energy storage systems.

Every GreenCore product is developed around three uncompromising priorities:

- Efficiency: Maximizing energy output through low-loss designs and precision manufacturing.
- Sustainability: Incorporating eco-efficient materials, fluids, and production methods to reduce environmental impact.
- Reliability: Engineered in Africa for Africa.

ACEM

GreenCore Series

Product Overview

Available in GreenCore 3400, 6800 and 9000 configurations.

GreenCore Distribution Transformers

Rating Range	Max Voltage Rating	Application	Cooling Type	Standard Compliance
1 MVA – 10 MVA	33 kV	Renewable applications	ONAN	IEC 60076 / SANS 780:2021

GreenCore Power Transformers

Rating Range	Max Voltage Rating	Application	Cooling Type	Standard Compliance
Up to and including 20MVA	33 kV	Renewable applications	ONAN / ONAF	IEC 60076

Standard containerized ratings range from 3.4 MVA to 9 MVA @ 40°C

GreenCore Containerized Substations

Rating Range	Max Voltage Rating	Application	Cooling Type	Standard Compliance
Up to and including 10MVA	11 – 36 kV	Modular Renewable applications	ONAN	IEC60076

GreenCore Smart Monitoring Systems

Rating Range	Application	Cooling Type	Standard Compliance
ArmCoil OWTI ArmCoil EMDR ArmCoil NERPRO	Digital monitoring & predictive maintenance	IoT-enabled	TBC

ACEM
GreenCore Series

Engineering for Renewables

Designed for Variable Loading

- Solar deflection may fluctuate throughout the day.
- GreenCore transformers withstand rapid cycling and load swings without thermal stress.

Optimized for Harmonic Content

- Renewable inverters introduce harmonics.
- GreenCore designs include enhanced core design winding configurations to manage harmonic distortion.

Improved Thermal Performance

- Built for ambient temperatures up to 45°C as standard, with higher ambient designs available on request.
- Containerised GreenCore substations are ONAN cooled; ONAF applies to selected power transformer configurations.
- Advanced insulation systems extend operational lifespan under stress.

Eco-Conscious Engineering

- Biodegradable ester oil options
- Recyclable steel and copper assemblies
- Low-loss magnetic cores reduce lifecycle emissions

Modular Configuration

- Ideal for containerized substations and hybrid projects.
- Enables scalable expansion as renewable plants grow.

Designed for Long Operational Life

- GreenCore substations are engineered for long-term reliability through conservative design, high-quality materials, and proven insulation systems that minimize ageing under electrical and thermal stress.

Efficiency & Sustainability Metrics

Metric	GreenCore Performance
No-load loss reduction	IEC 60076-20
Load loss reduction	Optimised copper windings, low-loss core design
CO_2 reduction	Lower energy losses → reduced lifetime emissions
Recyclability	Steel tank, copper windings, and mineral oil recyclable
Oil Options	Standard configuration supplied with PCB-free mineral oil in accordance with IEC 60296; ester oil optional.
Efficiency class	IEC 60076-20

ACEM
GreenCore Series

Quality & Testing

ArmCoil ensures each GreenCore product meets the highest quality and safety standards through a full suite of testing protocols which includes ISO17025 verification.

Factory Testing Capabilities

- Routine Tests
- Type Tests on request
- Special Tests on request
- DGA (Dissolved Gas Analysis)
- SFRA (Sweep Frequency Response Analysis)

Acceptance Testing

- Factory Acceptance Tests (FAT)
- Site Acceptance Tests (SAT)
- Full test documentation provided including ISO17025 verification certification.

Compliance & Standards

ISO Certifications

- ISO 9001
- ISO 14001
- ISO 45001
- ISO 17025

Standards

- IEC 60076
- SANS 780:2021
- OEM-specific compliance on request

ACEM
GreenCore Series

After-Sales & Service Support

ArmCoil provides complete lifecycle support for all GreenCore installations:

- Commissioning & on-site supervision
- Preventive & corrective maintenance
- Transformer refurbishment & upgrades
- 24/7 technical support across Southern Africa & Africa
- Regional spares & service availability

Summary Statement

The ACEM GreenCore Series is a complete ecosystem of renewable-ready electrical products — purpose-built, efficient, sustainable, and engineered in Africa for Africa. From transformers and substations to monitoring intelligence and interconnection equipment, GreenCore delivers the reliability needed to power the continent's clean energy future.

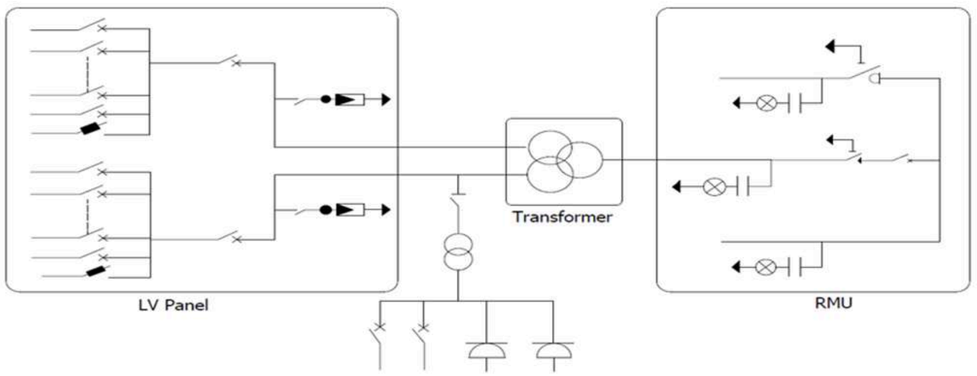
All GreenCore products are proudly engineered and manufactured locally at ArmCoil's South African facilities

ACEM
GreenCore Series

ACEM GreenCore 9000/6800/3400

Smart Transformer Station

Schematic Diagram



Smart Design

- Fully integrated and factory-tested monitoring and protection system
- No onsite internal cabling required – true plug-and-play installation
- Compact panel/container design for quick setup and easy transport

High Performance

- Optimized ArmCoil OWTI (Modbus) panel for precise thermal management and improved equipment performance Low internal power consumption for reduced operating losses

Trusted Reliability

- Built for harsh environments with durable enclosures and dynamic cooling
- Designed for high availability and long-term operational stability Complete system testing from components to full end-to-end validation

Enhanced Protection

- Robust protection provides safe and clear signaling, reliable alarms and remote accesibility for simplified Operation & Maintenance, supported by thorough verification of sensors, trip circuit and system integrity

Description	Green Core 9000	Green Core 6800	Green Core 3400
Available Inverters	Inverters TBA		
Max. LV AC Inputs	45	36	18
AC Power	9,000 kVA @40°C ①	6,800 kVA @40°C ①	3,400 kVA @40°C ①
Rated Input Voltage	3x 690V 3 x 2510A ②	3 x 690V 3x 1897A ②	2 x 690V 2 x 1423A ②
LV Panel Segregation	Three sections	Three sections	Two section
LV Main Breakers / Switches	ACB (2500A, 3 x pcs)	ACB (2000A, 3 x pcs)	ACB (2000A, 2 x pcs)
LV Main Switches for Inverters	Inverter Dependant	Inverter Dependant	Inverter Dependant
Output			
Rated Output Voltage	6.6~33 kV ③		
Frequency	50 Hz / 60 Hz		
Transformer Type	Oil-immersed, Free breathing, bunded and Copper windings		
Transformer Cooling Type	ONAN		
Transformer Tappings	Available on request.		
Transformer Oil Type	Virgin Mineral Oil to IEC 60296		
Transformer Vector Group	Dy11y11y11		Dy11y11
Transformer Min. Peak Efficiency Index	In Accordance with IEC 60076-20		
RMU Type	Three way RMU		
Cable Incoming / Outgoing Unit	Direct cable, bottom entry		
Auxiliary Transformer	Dry Type Transformer, 5 kVA, Three-phase, Dyn11		
Auxiliary Transformer Output Voltages	400/230Vac		
Protection			
Transformer Detection & Protection	ArmCoil OWTI (Oil & Winding Temperature Monitoring Device)		
Protection Degree of MV & LV Room	IP 54		
RMU Transformer Protection Unit	MV Vacuum Circuit Breaker or SF6 Circuit Breaker		
MV Relay Protection	Self powered Tripping Relay (RMU depended)		
Protection LV Overvoltage	Type I+II		
Anti-rodent Protection	C5-Medium		
Features			
BTU/2 kVA UPS @ 220VAC/110VAC	Standard ④		
MV Surge Arrester for MV VCB	Optional ④		
General			
Dimensions (W x H x D)	6,058 x 2,896 x 2,438 mm (20’ HC ISO Container)		
Weight	< 28 t	< 22 t	< 15 t
Operating Temperature Range	-25°C ~ 55°C ⑤		
Relative Humidity	0% ~ 95% (Non-condensing)		
Max. Operating Altitude	1,000 m ⑥		
MV-LV AC Connections	Prewired and Pretested, No Internal Cabling Onsite		
LV & MV Room Cooling	Yes		
Communication	Avaliable on request		
Standards Compliance			
IEC 62271-202, IEC 60076, IEC 62271-200, IEC 61439-1, SANS 10131, IEC 60947-2, IEC 60137, IEC 60364, IEC 60296			

① More detailed AC power of GreenCore Series available.
② Other voltages are available on request.
③ Rated output voltage from 6.6 kV to 36 kV, more available upon request.
④ Various options available on request.
⑤When ambient temperature ≥55 Degree Celsius, additional cooling options available.
⑥For higher operating altitude, kindly consult with ArmCoil.

Proudly Manufactured By: ArmCoil — Delivering Power Solutions through Transformers & Substations

ACEM

GreenCore Series

ArmCoil Afrika (PTY) Ltd
Unit 2, Prestige Business Park.
127 Albertina Sisulu Road,
Technikon, Roodepoort

+27 11 763 2351
sales@armcoil.co.za
www.armcoil.co.za