Motors | Automation | Energy | Transmission & Distribution | Coatings

SC100 / 200 / 300

Low Voltage Motor Control Center

Driving efficiency and sustainability

www.weg.net

Low Voltage Motor Control Center

The WEG SC range of Motor Control Centres (MCCs) is engineered for excellence in industrial power distribution and motor control applications. Built with cutting-edge technology and adhering to the highest international standards, WEG SC MCCs provide a robust, scalable, and highly reliable solution for diverse industries, including mining, oil and gas, utilities, and manufacturing.

Key Features

- **Modular and scalable design** Flexible configurations for a wide range of applications.
- **Advanced safety features** Integrated protections to enhance operator safety.
- **Coordination types 1 and 2,** according to IEC 60947.
- **Compact footprint** Optimised space utilisation without compromising performance.
- **High fault-tolerance** Engineered to withstand demanding industrial conditions.
- **Ease of maintenance** Designed for quick access and simplified servicing.
- **Internal arc protection** IEC 61641 Class C certification, offering the highest level of protection against internal arc faults.
- **Smart technology integration** Compatibility with Industry 4.0 solutions, including remote monitoring and predictive maintenance.

Certifications and Standards

IEC 61439-1
Low-voltage switchgear and control gear assemblies – General rules.

SANS 1973-1
A South African standard that specifies the requirements for the design, construction, and testing of low-voltage switchgear and controlgear assemblies.

IEC 61439-2
Power switchgear and control gear assemblies.

ISO 14001:2015
An international standard that outlines the criteria for an effective environmental management system (EMS).

IEC 61641 (Class C)
Verified resistance to internal arc faults, providing superior personnel and equipment protection.

ISO 9001:2015
An internationally recognised standard for quality management systems.

Advantages of using MCCs

Two different MCC models are available:

Conventional MCCs consist of vertical compartmentalised sections.

Intelligent MCCs have the same characteristics of the conventional MCCs; however, each control unit has an intelligent device, like soft-starters, variable frequency drives, or microprocessor relays - “Smart Relays” (with support for fieldbus communication network), which allows access to control and monitoring systems.

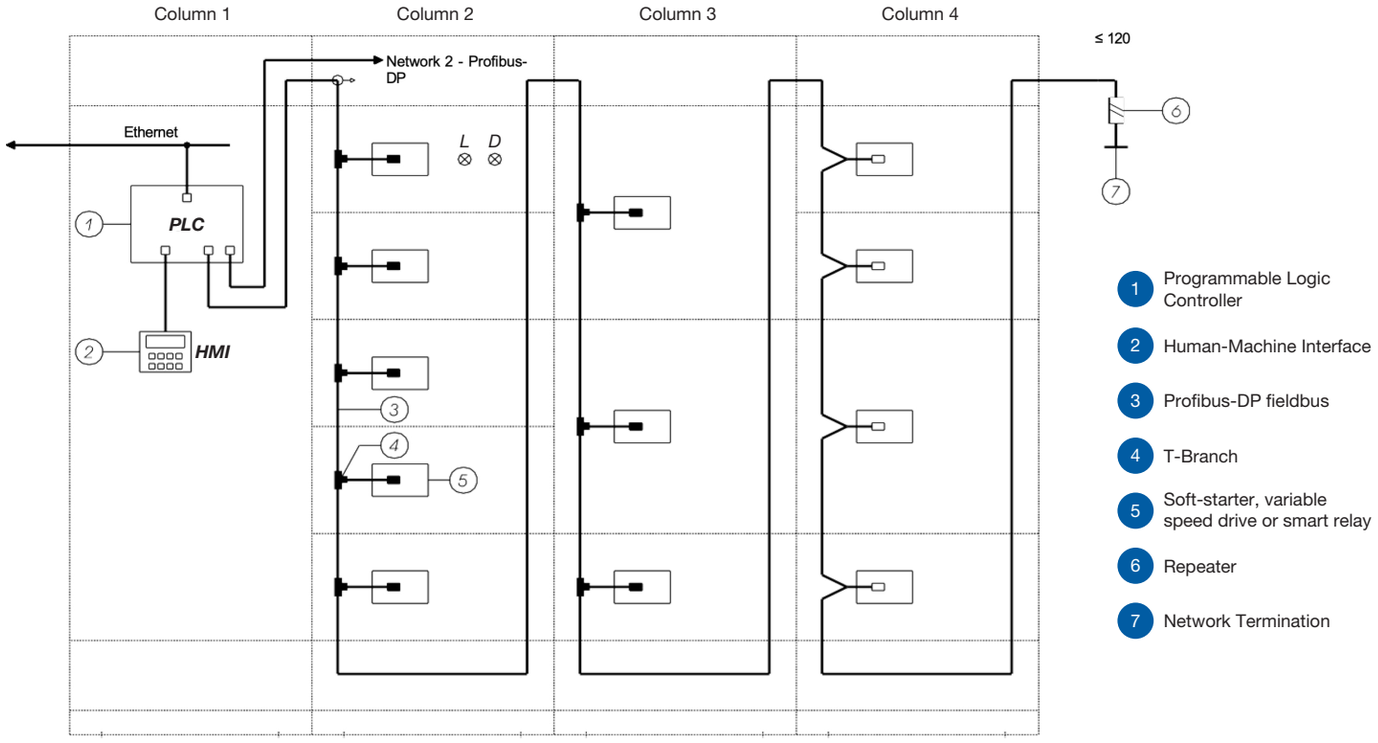
Conventional MCC

- System reliability provides a continuing, uninterrupted service.
- Safety for the personnel installing and operating.
- An effective and centralised way for grouping low-voltage motor starters.
- Each unit is fully compartmentalised, which allows for more mounting space for components and confines any potential faults within the individual unit.
- Easy, fast and safe maintenance.
- Because of modularity, MCCs can be easily designed and assembled for varied applications.
- Future expansion and modification are easily achieved.

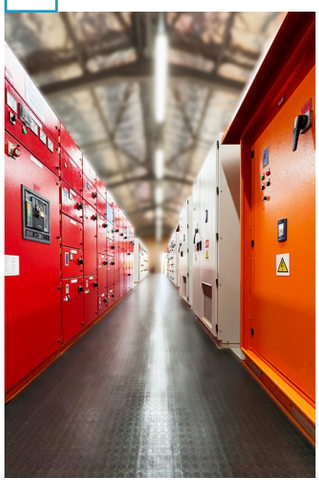
Intelligent MCC

- More reliable protection system.
- Removal of some unit devices like overload thermal relays, current transformers, etc.
- Control cabling reduction.
- Monitoring cabling reduction due to the use of twisted pairs.
- Remote control and monitoring via Human-Machine Interface (HMI), PLC or PC.
- Quick fault identification.
- Support for Ethernet, Profibus-DP, DeviceNet, Modbus-RTU and other communication.
- Communication with other PLCs using an open-source protocol.

Example of Intelligent MCCs Using Communication



Technical Characteristics – WEG SC100 / 200 / 300



WEG SC Range MCC Data Sheet

	Standard
Voltage class	up to 690V 50 Hz
Voltage tolerance	At 525V +10 % at 690V +5%
Insulation Voltage	1000V
Impulse withstand voltage	8kV
Incomer rate of current (3 wire or 4-wire)	400A to 4000A (other sizes on request)
Main current busbar (3-wire or 4-wire)	1000A to 4000A (other sizes on request)
Dropper current vertical busbar (3-wire or 4-wire)	(800A SC 100) and (800A or 1000A SC200 & SC300)
MCC control busbars	63A (max. 2 sets of control bars)
All Busbar's bear copper	(on request tin-plated busbars)
Rated short-time withstand current (kA)	50kA (105 kA peak) and 65 kA 1 sec. (143 kA peak)
MCC Degree of Protection	IP 4X (door open IP2X)
Ambient temperature	35ºC Max. peak 40ºC (max. average in 24 hours can't exceed 35º)
Internal separation	3b or 4a
Panel sheet metal thickness	2 mm
Panel base sheet metal thickness/height	2,5 mm / 75 mm
Chassis	Aluzinc 2mm thick
MCC panel height	2375 mm
MCC panel depth	670, 690, 800 and 1100 mm
MCC Tier width	400, 600 and 800mm
Incomer tier width up to 3200A	800 mm (internal separation 4a)
Incomer tier width up to 4000A	1000 mm (internal separation 4a)
MCC main busbar location	On top of the panel
Paint Epoxy power coating Orange B26	(other colours, on request) thickness between 60-80 microns panel and panel base
Maximum altitude	2000m
Arc Flash flaps for IEC 61641 location	On top of the MCC Panel (and is req. 600 to 800 mm from top of the panel to top of ceiling)

Service Conditions

The SC100, SC200, and SC300 were designed in compliance with IEC 61439-1 / 2 for service under normal conditions, as indicated in **Table 1**. The manufacturer should be consulted for variations on the normal operating conditions specified in the IEC standards.

Table-1 Service conditions SC100, SC200 & SC300

Ambient Temperature	**°C**
Maximum Value	40
Maximum Average Value in 24 hours	35
Minimum Average Value in 24 hours	-5
Recommended Average Value in 24 hours	-5
Altitude Above Sea Level	**m**
Maximum Value	2000
Humidity Conditions	**%**
Maximum Relative Humidity at 40°C	50
Maximum Relative Humidity at 20°C	90
Degree of Pollution	
The environment has conductive pollution or non-conductive dry pollution, which can become conductive due to condensation.	II

Under special service conditions, specific requirements must be met, or special arrangements must be reached between the assembler and the user.

The user must inform the assembler of the existence of exceptional service conditions.

For example, possible increases in ambient temperature above normal service conditions stipulated in IEC61439-1 must be compensated for in busbar and branch design and component sizing. Otherwise, the current carrying capacity will be limited.

WEG SC Range Construction

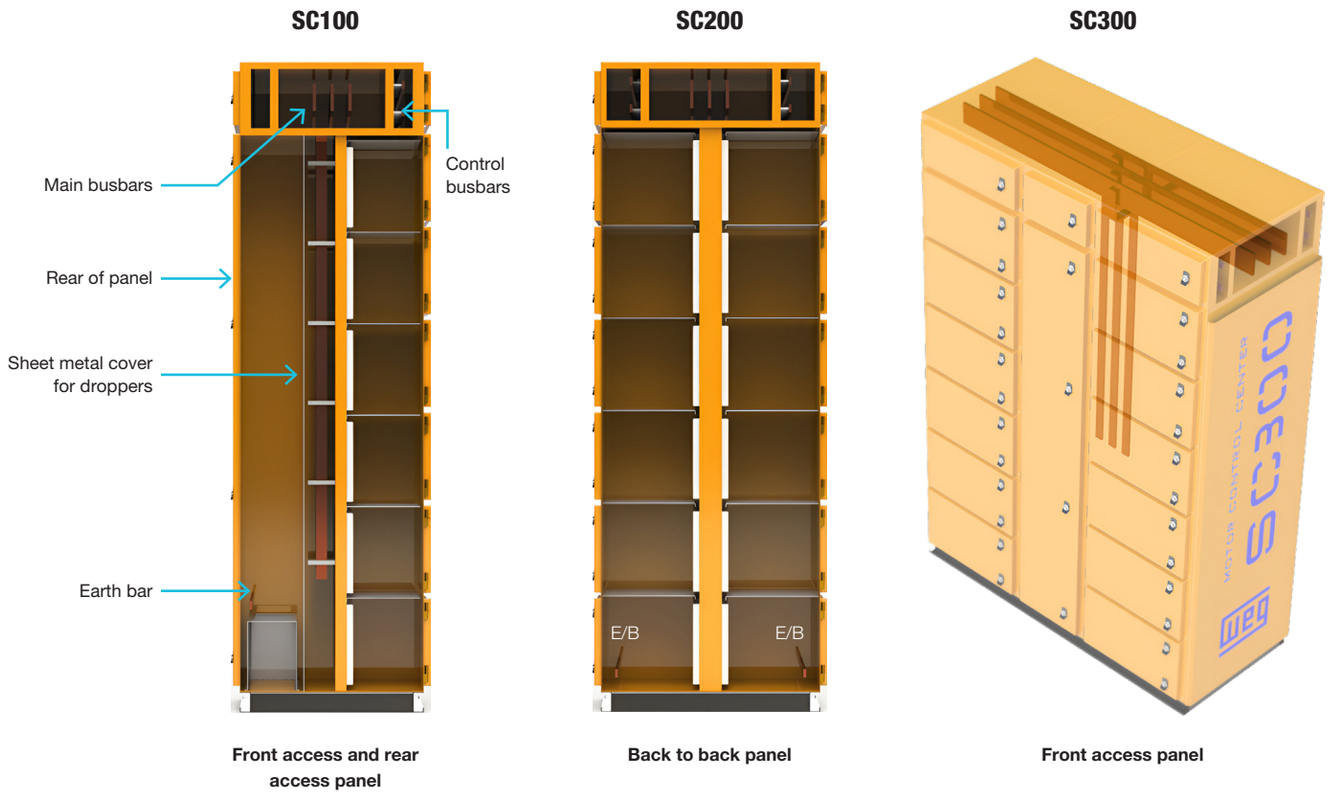


Figure 1 - Main Busbar

Section / Tier

Sections are bolted together and mounted on a 75mm high plinth to form a support for shipping (either double-fronted - back-to-back-, front access - back-to-wall, - or rear access configurations).

The total standard height of the section for type SC is 2375mm (different heights can be manufactured depending on the application). Type SC is a rigid, freestanding sheet metal enclosure divided into individual enclosed compartments. The compartments may accommodate incomers, starters, feeder assemblies, PLCs, and marshalling terminals.

Type SC100 represents a rear access assembly for terminations. SC200 is a back-to-back panel representing front access terminations via a wireway section/tier, and Type SC300 represents a front access assembly for termination via a wireway section/tier.

Starter Functional Unit

Starters are fixed-design type, direct-on-line (DOL), direct-on-line reversing (DOLR), and feeders. In addition, it caters for other motor starting and control methods, such as Variable-Speed Drives (VSDs) and Soft Starters (SS).

Main Busbars

The busbar compartment is located at the top of each tier section and contains a three- or four-phase copper busbar arrangement, with the phase sequence Red, White, Blue, and Neutral, from rear to front. See the phase illustration in **Figure 1**. The neutral busbar can be rated at the phase bars or 50%. Its position is generally after the Blue phase.

The number and size of the busbar are chosen to suit the rated current and fault level of the particular motor control centre. The main busbars are shielded from the other parts of the assembly.

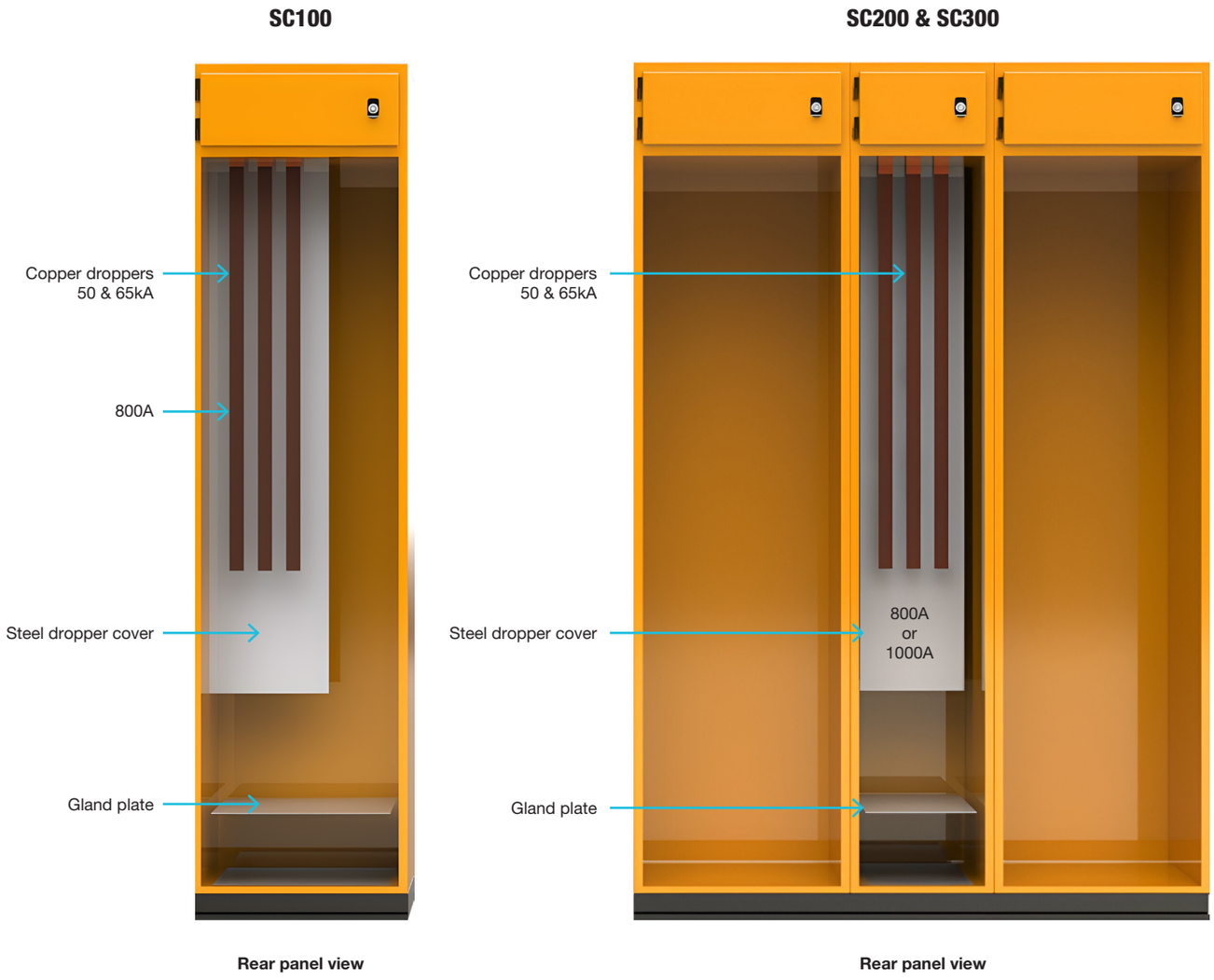


Figure 2 - SC100/200/300 Riser / Droppers

Risers / Droppers

For the rear access sections (SC100), the three-phase vertical distribution busbar risers are usually at the rear of the section, behind the chassis plates.

In the case of front access construction, the risers would be mounted in the cableway / terminal compartment (SC300).

The same applies to the back-to-back panel (SC200).
Risers are generally made of high-conductivity copper, suitably braced for the board's fault level - see **Figure 2**.

Earth Bar

The horizontal earth bar runs along the full length of the section at the bottom.

Configurations

WEG's SC range of MCCS comes in three configurations: **SC 100**, **200**, and **300**.
SC100 is a front-access assembly, **SC200** is a back-to-back assembly, and **SC300** has front and rear access.

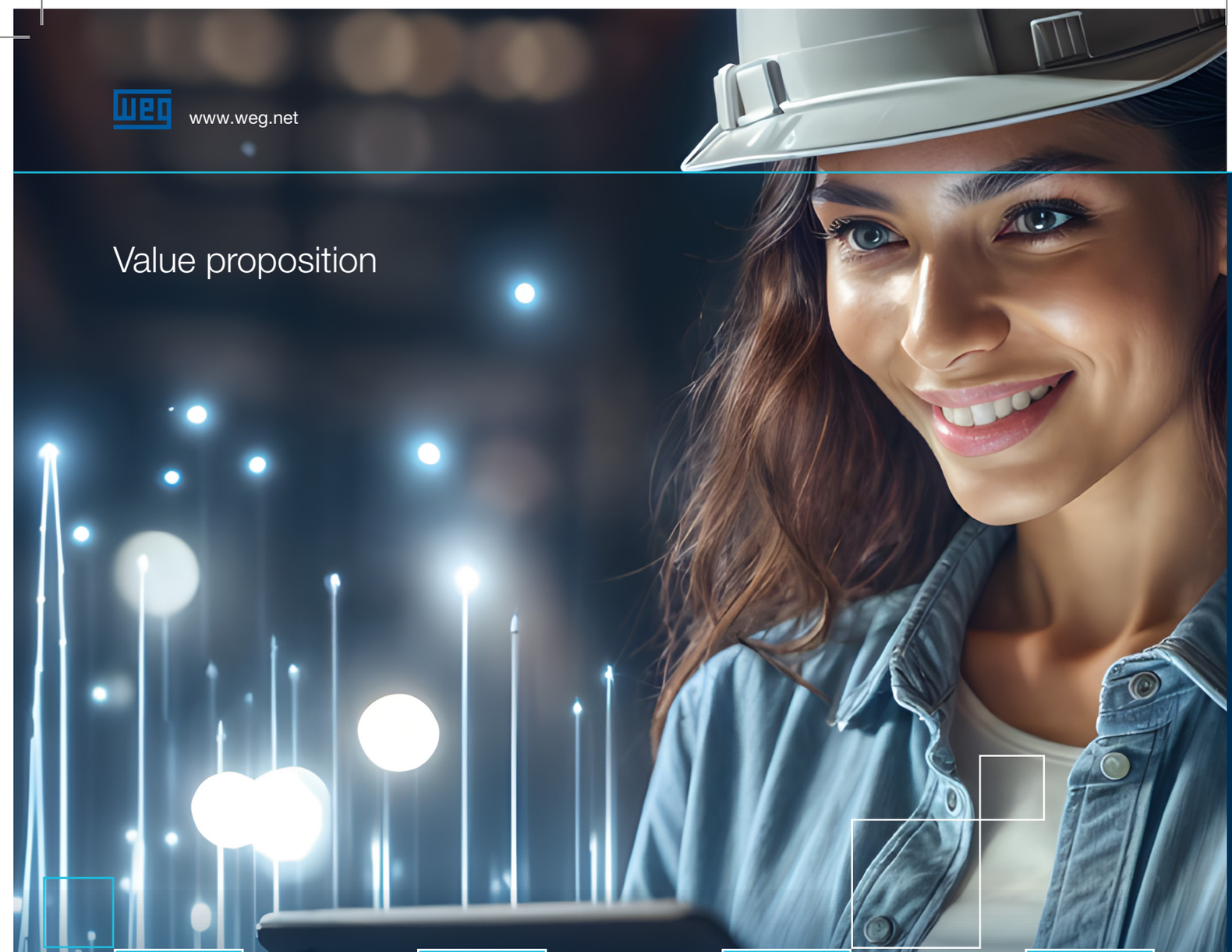
WEG Type SC100 panel

WEG Type SC200 panel

WEG Type SC300 panel

Motor control **Front and rear access panel**	**Motor control** **Front and rear access panel**	**SC300 Panel**
Segregated, modular construction with maximum of 6 x 1 way modules per section.	Segregated, modular construction with maximum of 6 x 1 way modules per section.	Segregated, modular construction with maximum of 6 x 1 way modules per section.
	Separate terminal cubicle adjacent to starter panel	Separate terminal cubicle adjacent to starter panel
Top main busbar up to 4000 amp 800w panel).	Top main busbar up to 4000 amp.	Top main busbar up to 4000 amp (800w panel)
Vertical dropper busbars up to 1000 amp.	Vertical dropper busbar up to 1000 amp.	Vertical dropper busbars up to 1000 amp
Raised gland box.	Bottom cable entry.	Bottom cable entry.
Top or bottom cable entry.	Double-sided component mounting.	Component mounting in the front of the panel only.
Rear access (for cabling installation)	Back to back panel.	Front access only.
75mm plinth.	75m plinth.	75mm plinth.
Lifting plates for handling / transport.	Lifting plates for handling / transport.	Lifting plates for handling / transport.
Field terminations in back of panel.	Field terminations in back of panel.	Field terminations in cable way panel.
Protection standard ip 42 on request IP 54.	Protection standard ip 42 or on request IP 54.	Protection standard ip 42 or on request IP 54.

Value proposition



Enhanced Internal Arc Protection

A higher level of safety compared to standard solutions.

Superior Customization

Tailored configurations to meet specific industrial requirements.

Robust Construction

Designed to operate in harsh environments with minimal downtime.

Global Compliance & Local Support

Meeting international standards while offering dedicated regional support.

Service Level Agreements

Periodic maintenance to prevent downtime and increase safety.

Onsite Training

Practical on-site training on how to maintain, repair infrastructure.

Project Management

Dedicated project manager from start to finish.

WEG in numbers

+1 million

Largest manufacturing site for low voltage electric motors in the world.

+12k

hectares of reforestation, **50%** of renewable resources and **50%** of native forest

Product portfolio with over

1,500

product lines

+45k

employees worldwide

OVER

1,400

Service Centers around the world

Distributors/agents in

+120

countries

Sales to

+135

countries

+60 thousand

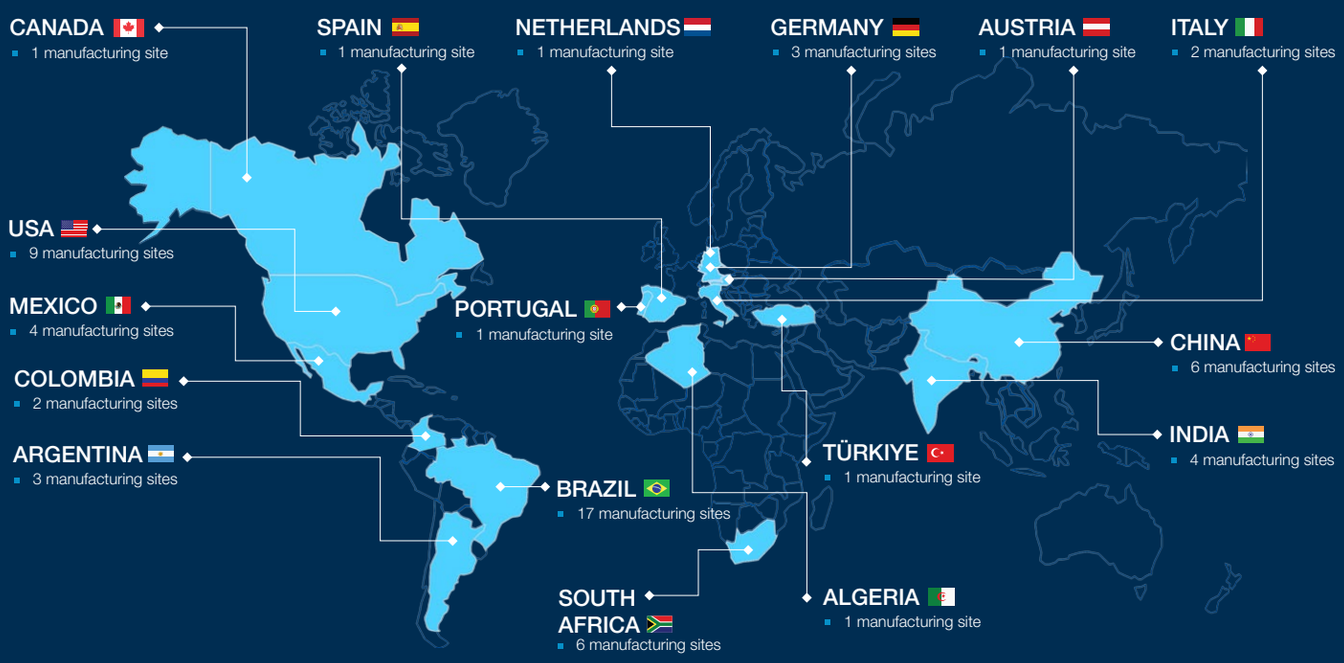
motors produced per day

63

Manufacturing sites in **17 countries** and **41 commercial** operations in **4 continents**

WEG Global Presence

63 manufacturing sites in **17** countries



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