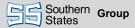




# **High Voltage Switching: the specialists**





# Coelme and Egic: the benchmarks in HV Switching

# One century of excellence

COELME, EGIC and Southern States: among the oldest names in the electrical industry.

While COELME-EGIC has been active now for more than 60 years, Southern States started nearly 100 years ago. This long-lasting experience allows us to propose a unique know-how.

Our resources amount to nearly 500 employees, 3 R&D centres and strategically distributed production and assembly units, worldwide.

As unrivalled specialists, we propose the widest range of switching devices, be they off-load like disconnectors, or on-load, like switchers. Moreover, our knowledge of specific issues and characteristics of High Voltage allows us to propose innovative, tailor-made solutions meeting all the real needs of our customers.





# **Trustworthy technology**

Thanks to the knowledge of the special needs of electrical Transmission and Distribution, all COELME-EGIC products are designed without compromise. They generally comply with IEC and ANSI standards to serve all markets. However, specific versions compliant with other standards are also available.

Besides our knowledge of contact technology, we are using only premium materials and the most advanced protection technology to ensure long-lasting performance.



### Contact technology

We master all contact types, be they operating in open air, in  ${\rm SF}_6$ , or under vacuum conditions.

The contact pressure is optimised to limit both the contact resistance and the operating torque.

The current path and the contact design allow increasing contact pressure in case of fault current.

The reliability of each contact point is guaranteed by its own spring device.

### **Conductive materials**

Our main circuits are characterised by:

- live parts and HV terminals made of aluminium and electrical copper
- contacts electrical made of electrical copper
- pure silver plating wherever necessary.

### Protection against corrosion

This is a key feature of any equipment intended to operate outdoor. For COELME-EGIC, the only credible trial is field experience supported by severe and successful salt-spray tests, which has led to the use of:

- · stainless steel or other corrosion-free materials
- hot-dip galvanising
- zinc-iron alloy coating
- · painting upon request.

# Field-proven reliability

COELME-EGIC is used to the extreme conditions switchgear may be subjected to in some areas of the world. Our equipment is designed to meet all the requirements of IEC or ANSI standards, for temperature, altitude etc..., but can also be installed under very harsh environmental conditions, such as:

- seismic areas
- heavy industrial pollution or geothermal environment
- desert areas, subject to sand-winds
- icy climate, with performances up to 20 mm ice, and temperatures down to -70°C.



# Performance for on-load and off-load switching

### **Disconnectors**

### COELME-EGIC offers a complete range of products meeting whatever need.

Manual or motorised operating mechanisms, either for gang- or phase-by-phase operation.

Making and breaking of induced and bus-transfer currents as per IEC standards, with possible higher ratings. Upon request, we can comply with any of your requirements differing from standards (higher terminal loads, for instance).

		Hookstick operated	Vertical Break	Double Break	Centre Break	V-Type C. Break	Pantograph	Semi Pantograph	Knee-type	Earthing Switch
IEC	ANSI				日	V	i			
17.5	15.5				AND A STREET	N. Continued in	HOLDER STREET,	Search Brother	A	
				_						
24	25.8									
36	38									
52	48.3									
72	2.5									
123	121									
145										
170	169									
245	242									
300	-									
362										
420	-									
550										
800										

### **More than disconnectors: switchers**

### COELME-EGIC proposes the tailor-made solution suiting your needs best.

Be it the case to switch railway lines, transmission lines, capacitor banks or reactors, we offer optimised solutions saving time, space and money. The transient control is our distinctive mark.

		Capacitor Switcher CapSwitcher <sup>®</sup>	Reactor Switcher RLSwitcher <sup>®</sup>	Circuit Switcher CSH	Loas Switcher LBS	Load-break Switcher VSD	Railway Switcher VSV
IEC	ANSI			一個			
12	8.25						
17.5	15.5						
24	25.8						
27	'.5				*		
36	38						
52	48.3						
72	2.5						
123	121						
14	<b>1</b> 5						
170	169						
245	242						
362							
420	-						
55	50						

## **Outstanding performance through innovation**

### Innovative devices...

# COELME-EGIC helps to solve specific issues with smart solutions.

For already known difficulties met in grid operation to be overcome, our R&D teams design special devices in close co-operation with customers:

- CMDII®: a compact, easy-to-install and saturation-free current sensor for protection and grid management
- AOM: an Autonomous Operating Mechanism, with GSM interface and monitoring of disconnector position
- Operating Mechanisms with special features, like batterybased UPS

... as well as many other tailor-made solutions.





# ...powered by Research & Development...

Over the past years, special efforts were made by our research centres to develop new devices and expand our range of products: every year, we earmark large sums for R&D!

Experimenting is considered essential at COELME-EGIC, which is why our factories are provided with indoor and outdoor testing areas, where it is possible to reproduce, on a real scale, most of the equipment working configurations. Severe development tests are carried both in these areas and at external laboratories.

All type tests (dielectric, high-power, climatic, seismic ...) are certified by the most renowned independent laboratories; among them, CESI, KEMA, Les Renardières/EDF, ISMES, VOLTA, SVEPPI...

In time, COELME-EGIC has established a beneficial cooperative relation and technical partnership with all of these laboratories as well as with other important Research Institutes, such as, for instance, the University of Padua (Italy).

# ...under the control of a total quality management system

# Quality, Safety and Environment are a taken very seriously in COELME-EGIC.

We were awarded successively with:

- ISO 9000, following all standard evolutions for the past 20 years
- ISO 14001, for the performance of our environmental policy
- BS-OHSAS 18001, for the management of health and safety.

Our activity focuses on design, production of critical components, assembly and factory reception process. Common components production is given to our network of suppliers. Most of them have ISO 9000 certification and all of them meet our internal quality criteria.

Individual tests all along the assembly process allow equipment to be verified and approved (measurement of voltage drops, mechanical tests, etc ...). Last but not least, commissioning is performed in compliance with IEC, ANSI, or customers' own specifications, which makes sure that our equipment meets your expectations.



## **Our goal: your satisfaction**

# Your expectations are our design rules

### As grid and substation designers

You are facing new challenges: longer transmission distances, complex switching needs, and smart grid implementation; you expect us to adapt to your requirements.

- Our standard range extends up to 800 kV, and 75kA / 3s with thousands of disconnectors already in service.
- The installation of the equipment can vary on a large scale: horizontal, vertical or upside-down mounting, inline, parallel or diagonal layout, parallel or perpendicular built-in earthing switch.
- We provide customised switching solutions, innovative operating devices and accessories to upgrade the grid.
- We support you during grid studies.

#### As contractors and turnkey solution providers

You demand switchgear specialists' backup, to focus on project management; you expect us to prove being a reliable partner.

- We proved many times to be a reliable partner for deadlines and complete logistics (e.g. 420 3-pole sets in 123 and 420 kV were delivered for a single project).
- We study with you the refurbishment or the upgrading of existing substations.
- We propose modular, easy-to-install equipment to reduce your installation time.
- We optimise cost, space and function through innovative combinations of switches.

### As end-users

You expect continuous service of the switchgear, with reduced maintenance, and trouble-free operation; you want simply ... to forget about your equipment!

- We can provide training and/or supervision for installation and commissioning.
- On average, our equipment works for more than 30 years with limited maintenance.
- Our most demanding customers have recognised their sturdiness and reliability.

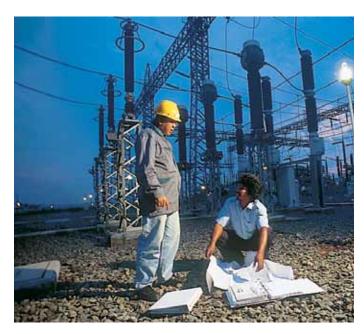












# A wide range of services to make your operations easier

#### Installation

Our on-site intervention teams can provide erection-, testingand commissioning-related services upon request.

#### After-sales service

Traditional after-sales activity:

- spare parts
- repair
- assistance
- preventive maintenance.

Processing special requests:

- refurbishment or upgrading of live parts
- replacement on existing structures
- motorisation of manually-operated devices
- upgrading of insulators pollution level
- addition of bus-transfer or induced currents switching devices.

# We serve our customers, we serve the World

As a world leading company – we are proud to state we are one of the top companies in our field – COELME-EGIC has delivered more than 100.000 switches in more than 100 countries.

We stand as a long-time partner for most of our customers. We have been supplying the major utilities of Europe for 60 years and our presence in the Americas and Asia is more than 30 years old. We have accompanied the electrical development of South-East Asia, China, Middle East, Africa and South-America.

America		Europe			Middle and	I Far East		
Argentina	Ayee	Albania	KESH-OST Bewag Kelag		China	CSPG		
	Hydronor Transener	Austria				MOR SGCC		
Brazil	CEMIG		Steweag		Georgia	GSE		
	CESP CHESF COPEL CPFL Eletronorte Eletrosul Furnas	Belgium	ELIA			Engurhesi Ltd		
		Bulgaria	Electrabel ESO		India	PGCIL		
		Bulgaria	NEK		Iran	TAVANIR		
		Estonia	Eesti Energia		Iraq	MOE		
		20.07.0	Elering		Jordan	NEPCO		
Chile	CGE Cobra	Finland	Fingrid	7	Pakistan	WAPDA	C.F. Asia a	nd Oceania
1	Endesa Transelec EPM	France	EDF	S	Saudi Arabia	SEC CEB		
-			RTE SNCF				Australia	Energy Austr. Powerlink SP AusNet
Colombia		Greece	PPC		Sri Lanka			
Ecuador	CNEL	Italy	ENEL		Syria	PEDEEE PEEGT	~ / /	TNSP
	CELEC EEQ Inecel Transelec	italy	RFI				Indonesia	PLN
			TERNA	Africa			Malaysia	SEB SESCO
		Kosovo	KOSTT	Algeria	Sonelga	az		TNB
El Salvador	Etesal	Norway	Statnett PSE	_	Faso Sonabe		N. Zealand Philippines	Trust Power
Guatemala	INDE	Poland			go SNEL			NGCP
Honduras	ENEE	Romania	Electrica Transelectrica	Egypt	EETC		Thailand -	EGAT
Mexico Peru	CFE Edelnor	Russia	FGC	Ethiopia	EEPCO	1		MEA PEA
reru	Luz del Sur REP	Serbia	EMC	Ghana	GRIDC		Vietnam	CPMMB
		Sweden	Svenska Kraftnät	Gridina	VRA			EVN
Uruguay	UTE	Sweden	Vattenfall	Morocco	ONE			NPPMB PTC
Venezuela	Cadafe CorpoElec Edelca	Turkey	TEIAS	Kenya	KPLC			SPPMB
		UK	National Grid	Tanzania	TANES	co		
			ENA	Tunisia	STEG			
		Ukraine	Ukrenergo	Zambia	ZESCO			

### Most of the major contractors in the world trust us.

ABB, Abengoa, Alstom, Ansaldo, Astronic, Bechtel, Cegelec, CG Belgium, Cobra, Edison, Efacec, Elbud, Elecnor, Encosmos, ENEL Green Power, ETDE, Faraniroo, Forclum, Hyosung, Hyundai, Iberinco, Isastur, Ineo, Isolux, Jiangsu Turbostar, Ludian, Maxwell, Mitsubishi, Omexom, Parsian, Rhona, Schneider, Siemens, Spie, TSK, UK Power Networks... are among them.

We are partnering to serve end-users, worldwide.

# Our customers qualify us and certify our products

COELME-EGIC was awarded qualifications by important customers, such as ABB and SIEMENS. Like many of our customers, you may require specific qualification procedures.

This is a step we are used to undertaking. Many demanding customers have also certified our products according to their accurate and strict rules. Among them are EDF/RTE, SNCF, ENEL/TERNA, RFI, CFE, CORPOELEC, SONELGAZ, ONE,

RFI, CFE, CORPOELEC, SONELGAZ, ONE, TRANSELEC, CHESF ...

