

AIR INSULATED METAL CLAD SWITCHGEAR

ESTRA-AC-**MCS**



ESTRA-AC

AC SWITCHGEAR



With a leading expertise in AC traction power substations, Sécheron SA is your major partner for the electrification of AC traction networks, covering the activities from engineering to the production of AC systems.

The ESTRA-AC product category covers all key equipment applied in AC distribution, integrating vacuum circuit breakers technology, earthing switches, measuring transformers, etc. We can offer tailor-made solutions based on modular concepts and standard products. Our equipment is developed on world-leading technology and proven worldwide design and acceptance. Our customers and partners benefit through this offer of all our system skills and experience.

GENERAL INFORMATION

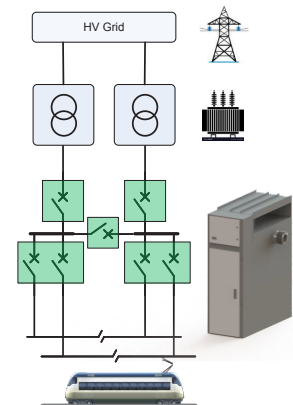
With a complete range of equipment and a long-lasting expertise in traction power, Sécheron is a world leader in the design and production of AC vacuum circuit breakers for rolling stock applications (15 kV and 25 kV), with more than 20 000 units in operation worldwide.

The air insulated metal clad switchgear is designed to feed the overhead line and is usually placed trackside, in an indoor substation, or in a container.

Our equipment is developed on world-leading design and technology and proven acceptance.

Available in single-phase systems for 15 kV / 16.7 Hz and in single-phase or two-phase systems for 27.5 kV / 50 Hz, the MCS air insulated metal clad switchgear switches and protects the main railway traction circuits including the overhead line.

APPLICATIONS



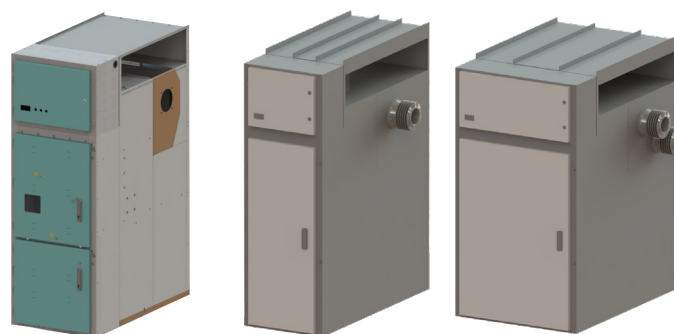
Typical AC traction substation

MAIN BENEFITS

- ✓ Robust and compact, for indoor installation
- ✓ Limited maintenance with easy access to all parts
- ✓ Air-insulated (100% SF6-free)
- ✓ Environmental friendly
- ✓ Main control unit including extended diagnostic functions
- ✓ Operating mechanism driven by a variable speed magnetic actuator
- ✓ Internal arc design classified IAC AFLR
- ✓ Compliant with IEC and EN standards

MAIN CHARACTERISTICS

| | Unit | MCS15-1P | MCS25-1P | MCS25-2P |
|---|----------|---------------------|---------------------|-----------------------|
| Main high-voltage circuit | | | | |
| Rated voltage | [kV] | 15 | 27.5 | 27.5 |
| Rated frequency | [Hz] | 16.7 | 50/60 | 50/60 |
| Number of phases | - | 1 | 1 | 2 |
| Rated lightning impulse withstand voltage | [kV] | 125 | 200 | - |
| - phase to ground | | - | - | 200 |
| - pole to pole | | - | - | 250 |
| Rated power frequency withstand voltage | [kV] | 50 | 95 | 95 |
| Rated normal current | [A] | Up to 2 500 | Up to 2 500 | Up to 2 500 |
| Rated duration of short circuit | [s] | | 1 | |
| Rated short-circuit breaking current | [kA] | 40 | 25 | 25 |
| Rated operating sequence | [s] | O-0.3-CO-60-CO | O-0.3-CO-60-CO | O-0.3-CO-60-CO |
| Internal arc classification | [kA / s] | AFLR 40 / 0.5 | AFLR 25 / 1 | AFLR 25 / 1 |
| Service continuity | - | LSC2B | LSC2B | LSC2B |
| Temperature class | [°C] | -5 / +40 | -5 / +40 | -5 / +40 |
| Protection degree | - | IP3x | IP3x | IP3x |
| Relevant standards | - | IEC 62271 | IEC 62271 | IEC 62271 |
| Dimensions (W / D / H) | [mm] | 800 / 1 600 / 2 300 | 800 / 2 000 / 2 400 | 1 300 / 2 000 / 2 400 |



STANDARDS

Sécheron's air insulated metal clad switchgear MCS are compliant with railway standards:

- **IEC 62505-1** | Railway applications – Fixed installations – Particular requirements for AC switchgear – Part 1: Circuit breakers with nominal voltage above 1 kV
- **IEC 62505-2** | Railway applications – Fixed installations – Particular requirements for AC switchgear – Part 2 (Ed. 2.0 2016-02): Disconnectors, earthing switches and switches with nominal voltage above 1 kV
- **IEC 62271-1** | High-voltage switchgear and controlgear – Part 1: Common specifications for alternating current switchgear and controlgear
- **IEC 62271-100** | High-voltage switchgear and controlgear – Part 100: Alternating-current circuit-breakers
- **IEC 62271-200** | High voltage switchgear and controlgear – Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV



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