

**VEO**

Valid for you.



**WEKE**  
**24**

medium voltage switchgear

# VEO knows your needs



"Close collaboration with our customers, and more than 5 million man hours of experience, puts us in the best position to deliver automation and electrification solutions for energy production, distribution and consumption to customers worldwide."

VEO's field of expertise is energy. We provide customised automation and electrification solutions for customers in the power generation, distribution and process industries.

Our services range from partial deliveries to turnkey projects, including pre-planning, equipment deliveries, project management, installations, commissioning and user training. Our know-how also extends to plant modernisations, maintenance and system updates.

## Independent - in the best interest of customers

We want to be an available, attentive and responsible partner, able to flexibly accommodate our customers' changing needs. Cooperation with all leading equipment suppliers in the field ensures that the solutions provided to our customers will always be the most suitable and the most advanced available.

## Know-how throughout the energy chain

Our extensive experience is visible in all major fields of the energy sector. Our know-how is cultivated and passed on to the next generation through the VEO Academy, whose expert seminars and training are also available to our customers. Our operation is based on the ISO9001:2000 quality management system, which is audited annually by both DNV and SGS-Fimko Ltd.

VEO manufactures its core products in-house. The tailor-made solutions offered to our customers are based on these core products with the addition of other suppliers' equipment in order to provide the best available solution for each project. In addition to control, protection and automation systems for power production, we deliver substations and medium voltage switchgears for distribution systems as well as low voltage switchgear, drives and automation systems for the process industry.

## VEKE 24 medium voltage switchgear

VEKE 24 is developed for power plants and industrial electrical distribution where compact functionality, modern design, safety and durability are needed.

In the versatile furnishing of the switchgear, components from the best manufacturers in the field are used. The VEKA product family's circuit-breakers are used as a main component. The cubicle structure, insulation and bushings

are designed to enable customised technical and economical solutions.

Due to its static and rigid frame, VEKE 24 is easy to move and transport even over longer distances. The rigid frame does not cause tension in the bus ducts or the switchgear connections.

VEKE 24 medium voltage switchgear is type-tested and arc-tested according to IEC- and EN-standards.



### VEKE 24

- safe and user friendly
- reliable and long lasting
- rigid frame structure
- FI-certificated product

# VEKE 24

## Technical solutions

### Cubicle type structure

The internal separation is Metal-Clad construction. The pressure relief channel is integrated into the cubicle construction. The breaker compartment is isolated from the main bus bar and cable compartment by metal shutter plates. The shutter plates are controlled by the position of the breaker.

### Secondary circuits

The compartment for the secondary apparatuses and circuits is separated from medium voltage areas by double metal walls. The secondary cable channels are spacious and offer versatile routes for later installations.

### Functionality

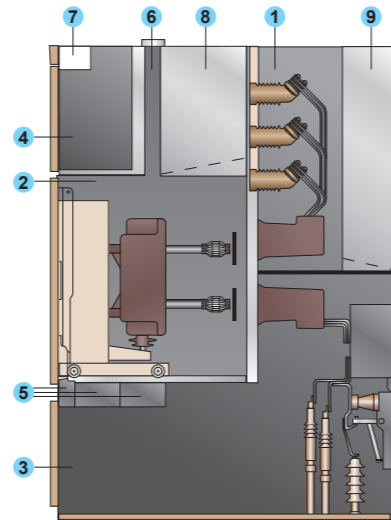
The mechanical interlocking system guides and safeguards the functions in all switching operations. The switching operations positions of the main circuits and the condition of the circuit breakers can be visually inspected.

### Sturdy

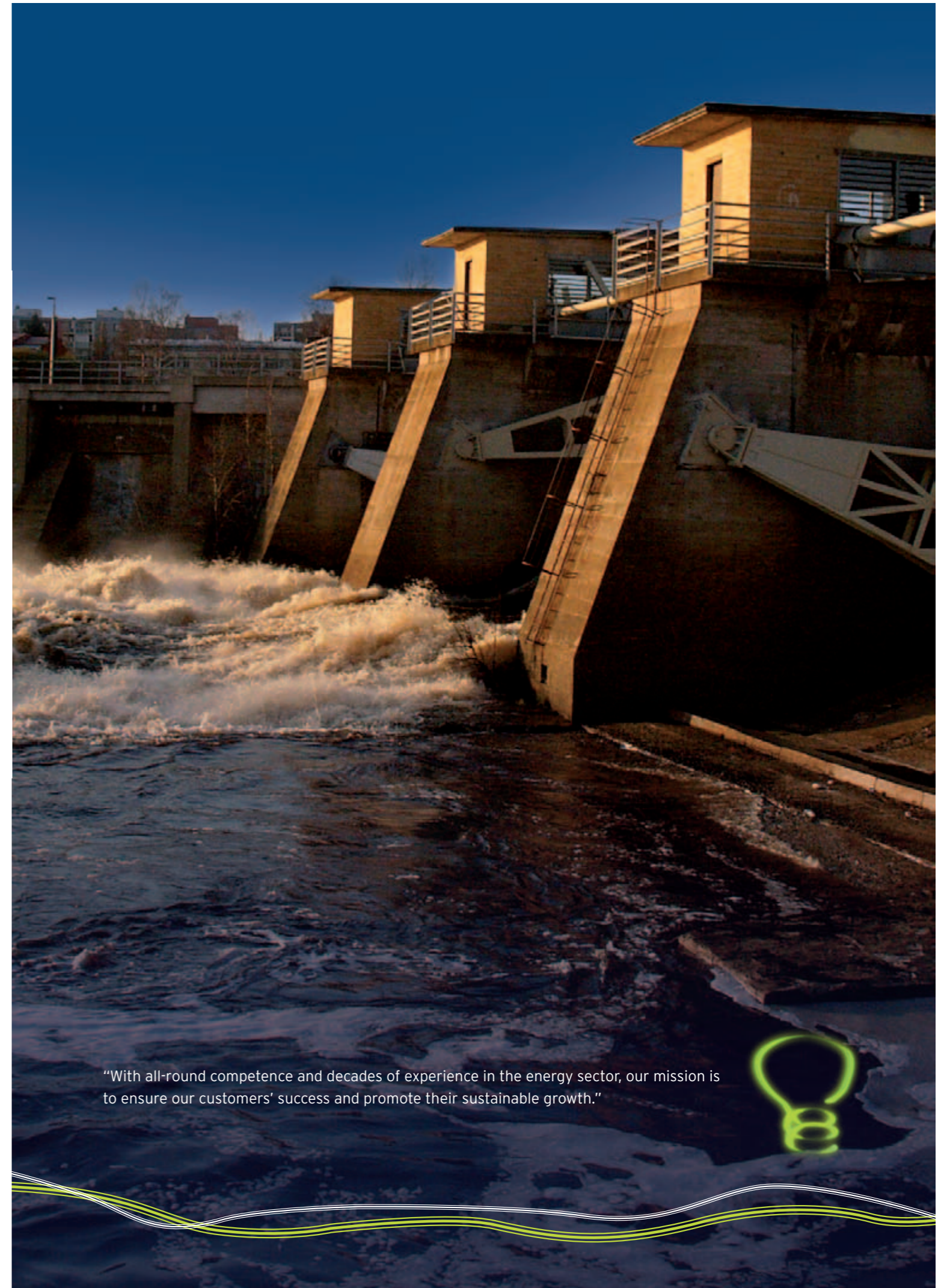
The supporting framework is constructed of large and strongly profiled plates. Tough rivet joints and self-threading screws are used in the frame assembly.

### Main parts and compartments of the Metal-Clad type cubicle

1. The main bus bar compartment contains the main bus bars, bus bar branches and the bushing boxes. The main bus bar compartment is continuous in the horizontal direction of the whole switchgear and operates as a built-in arc pressure relief channel.
2. The breaker compartment contains the circuit-breaker and the front steel shutters, automatically operated by the entry/ withdrawal of the circuit breaker.
3. The cable compartment contains the lower bushing boxes, earthing switch, measuring transformers, surge arresters, and high voltage cable terminals.
4. The low voltage control and relaying compartment is separated from the high voltage compartments by double metal walls.
5. The function unit contains the control devices for the circuit breaker and the earthing switch.
6. The ventilation channel can be connected to an external mechanical ventilation channel.
7. The low voltage cable channel connects the low voltage compartments and the vertical low voltage cable ducts between the cubicles.



8. A built-in arc pressure relief channel forms a continuous space in the lengthwise direction of the switchgear.
9. The cable compartment pressure relief channel is technically similar to the relief channel of the main equipment compartment. The pressure relief channels can be connected to a separate external relief channel in one or several locations.



"With all-round competence and decades of experience in the energy sector, our mission is to ensure our customers' success and promote their sustainable growth."

# VEKE 24

## Technical data



“As a supplier, our optimised, turnkey deliveries cover all your requirements from preplanning to implementation and training.”

Electrical			
Rated voltage	12 kV	17.5 kV	24 kV
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz
Rated insulation level power frequency	28 kV	38 kV	50 kV
Rated impulse withstand voltage	75 kV	95 kV	125 kV
Rated nominal current	630...4000 A	630...4000 A	630...2000 A
Rated short-circuit currents			
• Short-time withstand current, 3 sec	40 kA	40 kA	25 kA
• Peak withstand current I <sub>p</sub>	100 kA	100 kA	63 kA

Arcing withstand due to internal fault	
• Main busbars	40 kA 1s
• CB-compartment	31.5 kA 1s, 40 kA 0.2 s
• Cable compartment	25 kA 1s, 40 kA 0.2 s

Mechanical data	
Degree of protection	IP30 (optional IP31)
Mechanical impact strength	IK 08
Enclosure	Hot-dip zinc coated, cold rolled sheet steel Zn 275 g/m <sup>2</sup> corresponding to 20 µm coating thickness
• Sheet thickness	2-2.5 mm, double metal structures 2x1.5 mm
Surface finish	
• Doors and end walls	Electrostatic powder painting on outer surfaces, paint thickness 60 µm
• Colour shade	RAL 7035

Operating conditions	
Ambient temperature	-5...+40°C, 24 hour average max +35°C
Relative humidity	The average of relative humidity shall not exceed 95% in a 24-hour period and in the corresponding time period, the average partial pressure shall be limited to 2.2 kPa. In a one-month period the same limits are 90% and 1.8 kPa.
The recommended environmental class for the switchgear space according to standard EN 60721-3-3	3K3/ 3Z2/ 3Z4/ 3B1/ 3C1/ 3S1
Recommended installation height above sea level is below 1000 m. In case of installations above this level, the necessary instructions for the switchgear construction required will be given by the manufacturer.	

Dimensions in mm
Height 2200
Width 800 and 1000
Depth 1600

Standards
IEC 62271-200
IEC 62271-1

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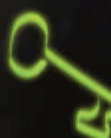
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VEO is a close, committed and attentive partner dedicated to finding the right answers to your energy-related needs.



Our decades of experience and innovative problem-solving ability are at your disposal.



We provide optimised, turnkey deliveries - complete solutions that cover the whole spectrum from preplanning to implementation and training.



The driving force behind our operations is always your success.