DW-2

MEDIUM VOLTAGE SWITCHGEAR



BUILT TO LAST! SGC

DW-2, Primary switchgear, air insulated and metal-clad.

DW-2'S MODULAR DESIGN ALLOWS YOU TO CREATE RATIONAL, ECONOMICAL & CUSTOM-MADE COMBINATIONS OF MEDIUM VOLTAGE CUBICLES (WITH A RATED VOLTAGE OF 12 OR 17,5 KV)

SwitchGear Company

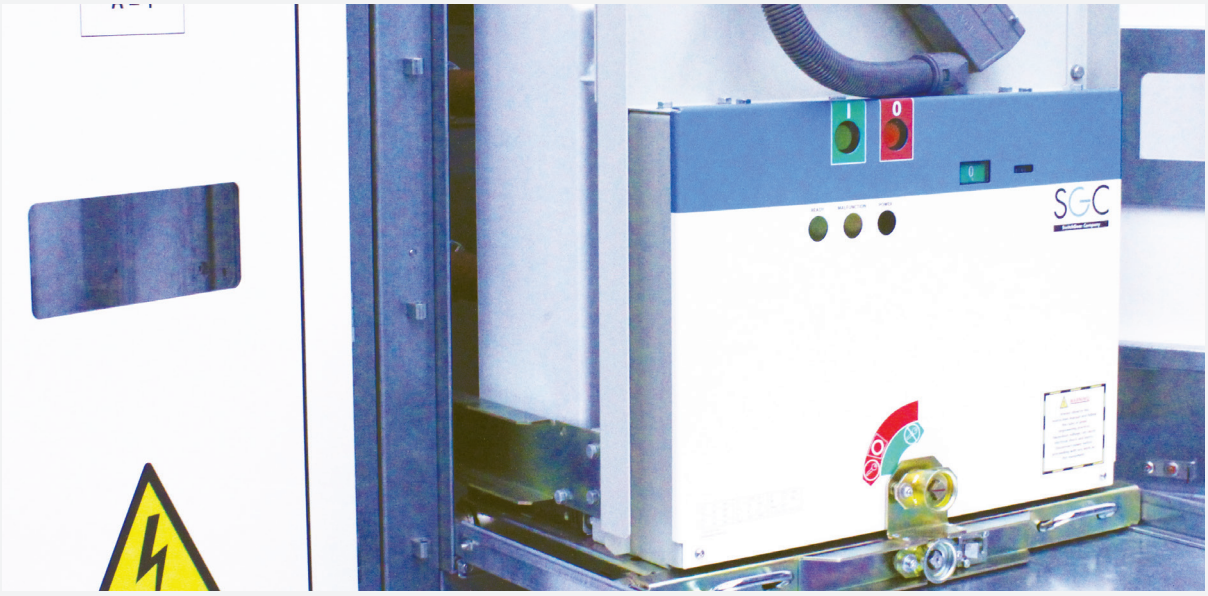
THE SPECIALIST IN MEDIUM VOLTAGE SWITCHGEAR

www.switchgearcompany.eu - info@switchgearcompany.eu

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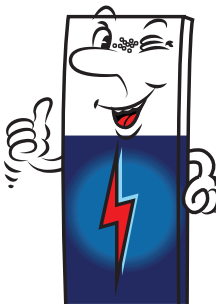


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1. OVERVIEW

1.1. DW-2 DESIGN PHILOSOPHY AND APPLICATIONS

SGC - SwitchGear Company is a fast-growing Belgian company that invests considerable time and energy in Research & Development to serve customers even better.

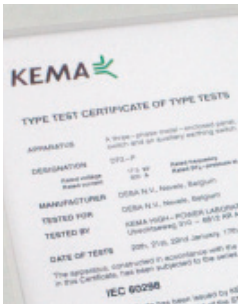


User-friendliness, safety and care for the environment were the main drive for developing SGC - SwitchGear Company's switchgear.

Over time SGC - SwitchGear Company has developed the "DW-2", a modular concept which combines all medium voltage functions. It allows SGC - SwitchGear Company to provide "made-to-measure" solutions for all your medium voltage needs.

The DW-2 cubicles and associated switchgear offer a wide range of applications and can be used worldwide in many industries. DW-2 cubicles can be used with distribution and dispersion switchgear, electrical substations and medium voltage engines, wind generators, cogeneration, and much more.

The DW-2-concept provides a solution for all your needs and demands: it can replace obsolete installations and extend existing installations, and it is also perfectly suitable for entirely new constructions.



1.2. MODULAR TYPE DW-2

The DW-2 system is a modular concept based on the "building blocks" principle, which means that cubicles are produced in series. As a result, the modular DW-2 concept meets the highest technical standards in a rational, economically sound way. The combination of cubicles is unlimited. Very complex diagrams of distribution and transformer switchgear can be compiled through this extensive spectrum of possibilities.

The semi-compact cubicles are particularly beneficial if the available space should pose a problem or if economical factors play an important role.

Cubicles also contain all functional interlocks which allows for effortless application, according to all current standards, and which allows installation in consumer work spaces. As a result, capacity loss will be minimal.

Additionally, the cubicles have been fitted with a system for pressure release which shields the user from the consequences of an internal arc.

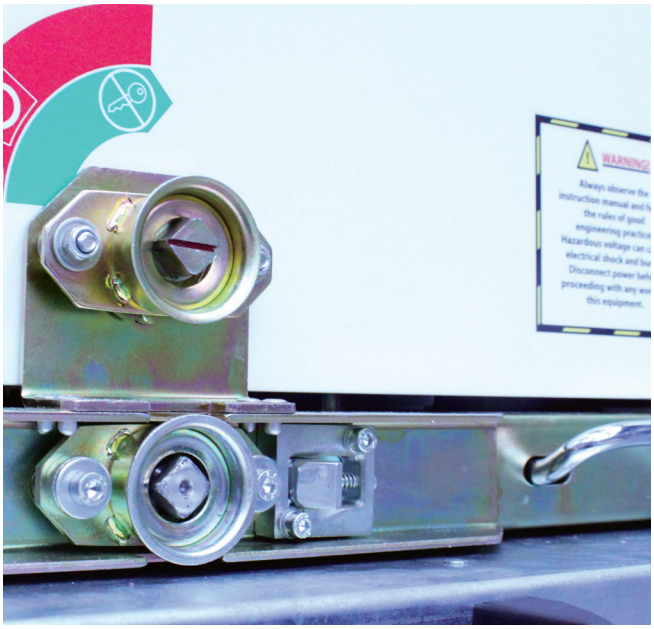
"A modular concept combining all medium voltage functions..."

1.3. STANDARDS

The DW-2 system has been certified according to IEC (International Electrotechnical Commission) standards:

The whole concept conforms to ISO procedures, certificates and even with ISO 9001 guidelines. Cubicle testing is carried out in accordance with IEC regulation and self-enforced quality requirements.

> "All cubicles are built according to IEC 62271-200"



1.4. TYPE TESTS

DW-2 switchgear solutions are all fully type tested according to IEC 62271-200:

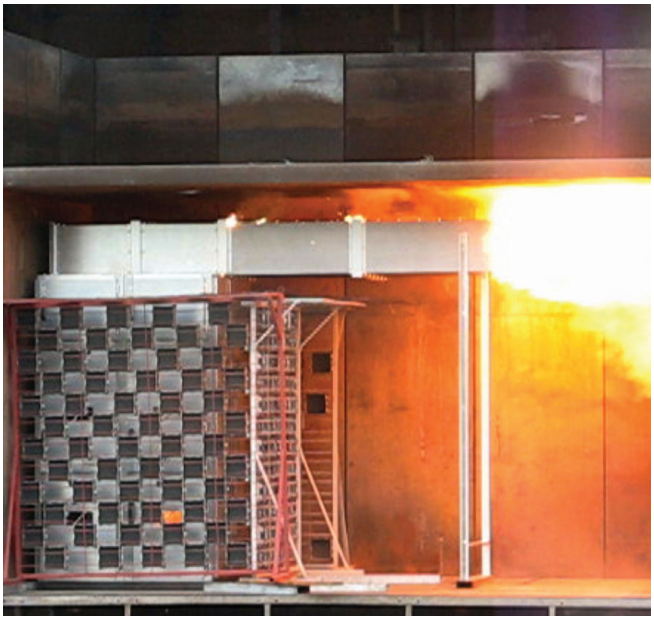
- Short time and peak withstand current
- Dielectric test on main and auxiliary circuits
- Making and breaking capacity of the circuit
- Mechanical operations breaker within the panel
- Temperature rise and main circuit impedance
- Internal arc fault (IAC classified: AFLR, 31.5A/1s)
- Earthing switch making capacity

AVAILABILITY AND PARTITION

DW-2 switchgear is designed in compliance to availability classes LSC2B and partition class PM according to IEC 62271-200.

The switchgear compartments do not need any tools for opening. Interlocks allow access only when the corresponding high voltage parts are dead and earthed.

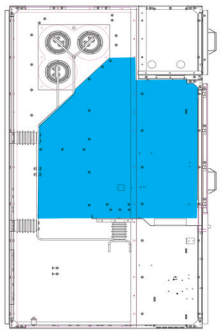
Metallic shutters and partitions segregate the compartments from each other. When a compartment is opened all other panels in the installation and all cable termination compartments (including that in the panel concerned) remain in operation.



Internal arc fault test, 31.5kA/1s

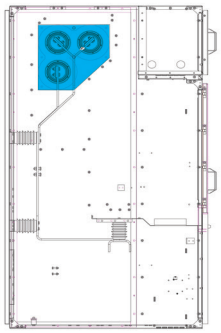
2. COMPARTMENTS

2.1. SWITCHGEAR COMPARTMENT



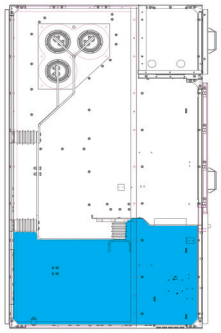
In this compartment, the withdrawable magnetic "vacuum" driven circuit breaker switch, acts as the physical separation between the busbar set and the cable compartment. The switch has two functions: it connects or interrupts the electrical current between the high voltage cables and the busbar.

2.2. BUSBAR COMPARTMENT



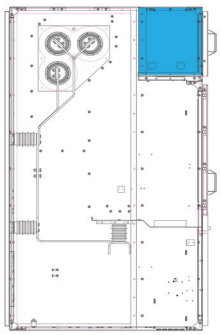
The busbar compartment is located at the back side of the cubicle and behind the low-voltage compartment. The modular busbar set is manufactured from specially provided electrolyte F25 copper. Several cubicles are connected through the bar set compartments. Hexagonal bolts connect the busbars to the upper contact surfaces of the fixed contacts in the insulators.

2.3. CABLE COMPARTMENT



The cable compartment is located behind the interlocked, removable door of the DW-2 cubicle. This part of the field receives the cable(s) and contains the necessary equipment to connect the cable(s). The earthing switch is installed below the circuitbreaker switch on the back side, ensuring a "visible earthing" when the earthing switch is closed. The door, the sectional floor panels, which house the necessary conductive rubber for the cables, and the cable supports, all simplify the cable connection.

2.4. LOW-VOLTAGE COMPARTMENT



The protection relay that controls the circuit breaker and accessories, such as the auxiliary contacts, and minimum voltage relays, are also located in this compartment. Any engine control with the necessary electrical switchgear, a control and clamp strip are also installed in this compartment. The compartment can be accessed very easily by opening the compartment door.

3. DW-2 MODULES RANGE

3.1. TECHNICAL SPECIFICATIONS

Rated Voltage	12 kV
Rated power frequency withstand voltage (Ud)	28 kV
Rated lightning impulse withstand voltage (peak)	75 kV
Rated short-circuit breaking current (Isc)	to 31.5 kA
Rated peak withstand current (Ip)	to 82 kA
Rated short-time withstand current (Ik)	to 31.5 kA
Rated duration of short circuit current (tk)	4 s
Internal arc withstand current, 1s	31.5 kA
Rated frequency	50/60 Hz
Rated busbar current	2500 A
Rated feeder current	630 A, 1250 A, 1600 A, 2000 A
Standards	IEC 62271-200
Degree of protection (RC 630 A, 1250 A)	IP4X
Degree of protection (RC 1600 A, 2000 A)	IP3X
Temperature range	-25…+40 °C
Maximum relative humidity	95%
Maximum altitude	1000m a.s.l.*

* For installations at altitudes higher than 1000 m, the insulation withstand level of external insulation at the service location has to be determined by multiplying the rated insulation levels by a factor K_a in accordance to IEC 62271-1.



3.2. EXTENSIVE SPECIFICATIONS

Cubicles consist of 2 mm galvanized steel plates. By opting for this particular plate size, the cubicles are able to withstand internal arcs effortlessly, both in the cable compartment as well as in the busbar compartment.

A lot of detail went into the functional design to ensure that, in the event of an internal malfunction, no bursts of flames can move between plating surfaces, the door or between cubicles.

Possible internal arcs are also guaranteed to be restricted to the compartment where they originated. The roof of the cubicle can be easily dismantled to provide smooth access to the busbar during installation and/or maintenance activities.

The copper busbar is manufactured to resist the current, which results in minimum heating at the contact points.

SGC - SwitchGear Company's countless years of experience resulted in a cable compartment as comfortable and as functional as possible.

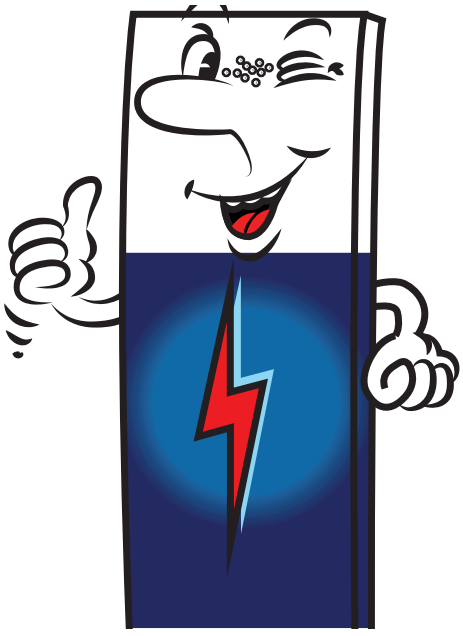
The operator has maximum access to the connection points. This is crucial when (dis)assembling cables and fuses, and during maintenance work. Moreover, it will save time and lead to less industrial accidents.

The high voltage cables can be supported by cable supports and the connection point in every type of cubicle is located high enough to install the terminals in the cubicle.

Manual operation of the cubicles requires minimal switch force. The clean and neat synoptic diagram provides a clear and safe overview of the different positions of the various parts of the cubicle.

The accessories (such as floor panels and busbars) are stored in boxes and ensure easy assembling of the cubicles.

The cubicles and their corresponding parts can be equipped with a wide range of optional features on request, in order to offer expert solutions to your needs.



"The cubicles can be equipped with a wide range of optional features..."

OTHER OPTIONS & DIMENSIONS?

Please consult us for options and dimensions other than those mentioned in this catalogue.

3.3. MODULES - SPECIFICATIONS & DIMENSIONS

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DW-2-BR Bus riser. p. 11

DW-2-BT Bus tie. p. 12

DW-2-M Measurement. p. 13

DW-2-DIF Direct incoming feeder. p. 14

DW-2 OPTIONS

- Protection Relay of choice
- Metering Relay of choice
- Cubicle heater / thermostat-humidistat
- Surge arrestors
- Others...

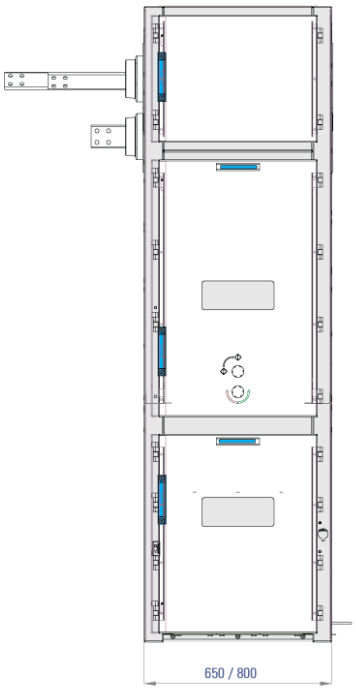
Please consult us for options and dimensions other than those mentioned in this catalogue.

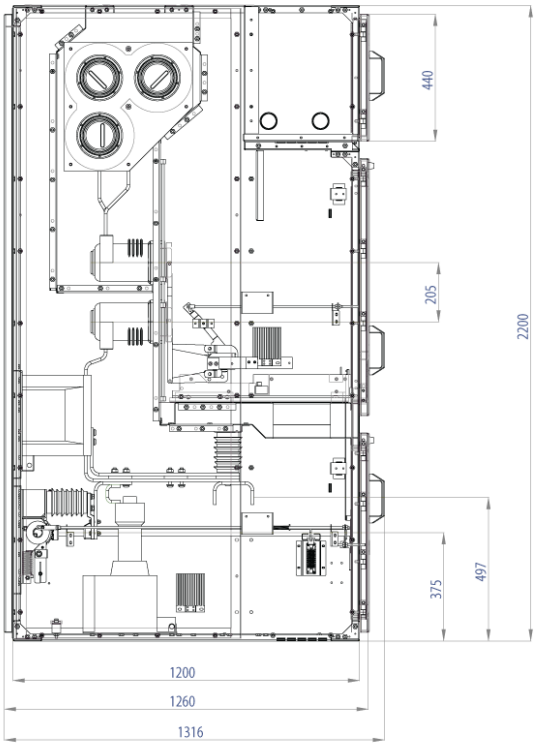


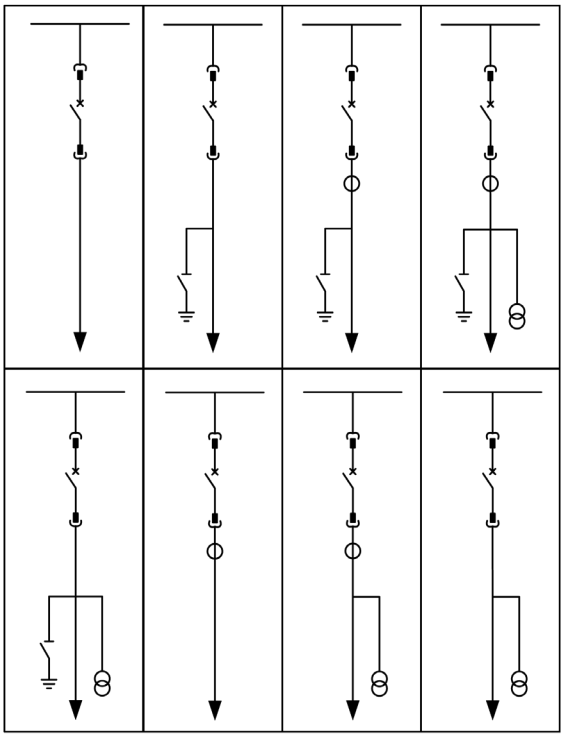

SGC
A = 1
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A = 2
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DW-2-IF

Incoming/outgoing feeder.







SPECIFICATIONS & DIMENSIONS

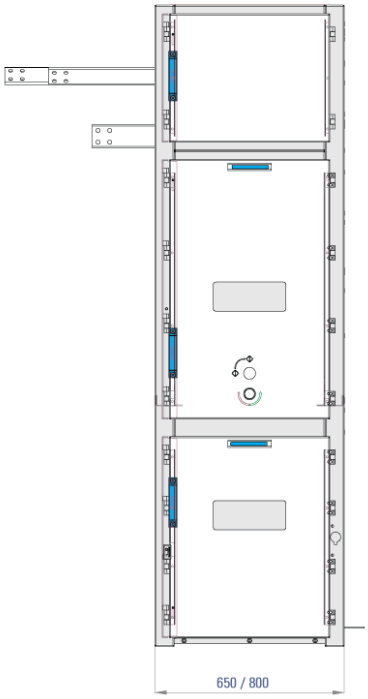
Rated current	A	630-1250	1600-2000
Height	mm	2200	2200
Height with arc venting shields	mm	2500	2600
Height with gas exhaust duct	mm	2600	2600
Width	mm	650/800	800
Depth	mm	1260	1260

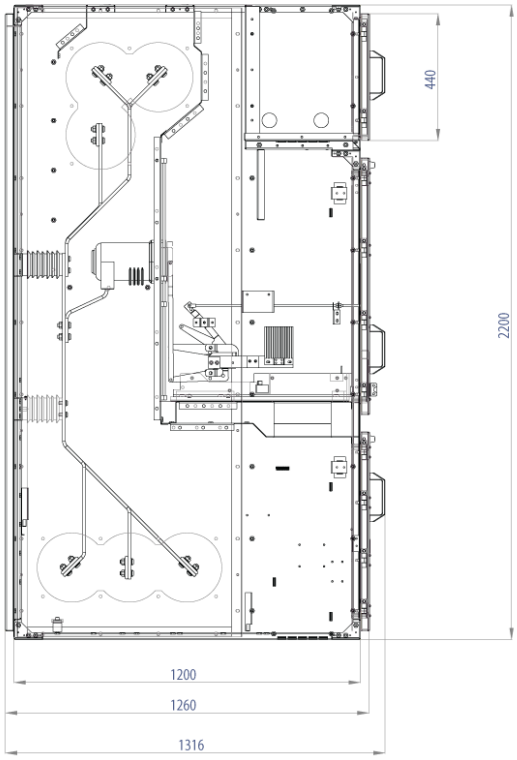
OTHER OPTIONS & DIMENSIONS?

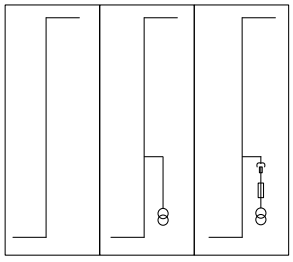
Please consult us for options and dimensions other than those mentioned in this catalogue.

DW-2-BR

Bus riser.







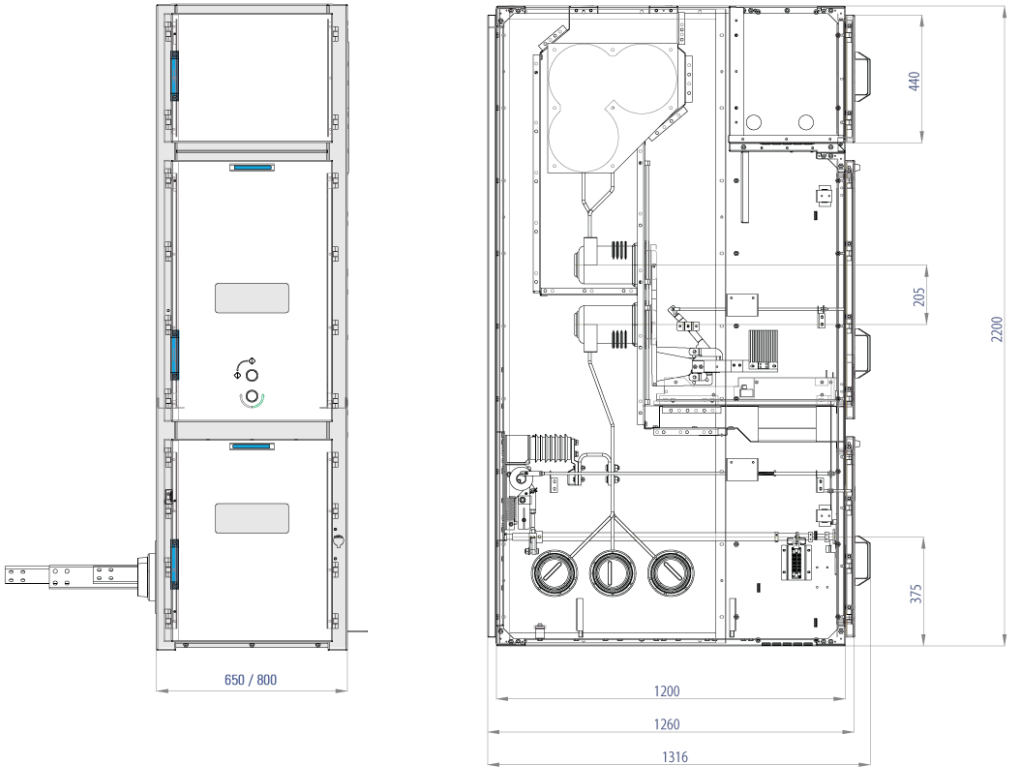
SPECIFICATIONS & DIMENSIONS

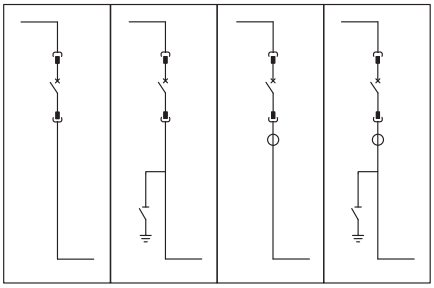
Rated current	A	630-1250	1600-2000
Height	mm	2200	2200
Height with arc venting shields	mm	2500	2600
Height with gas exhaust duct	mm	2600	2600
Width	mm	650/800	800
Depth	mm	1260	1260



DW-2-BT

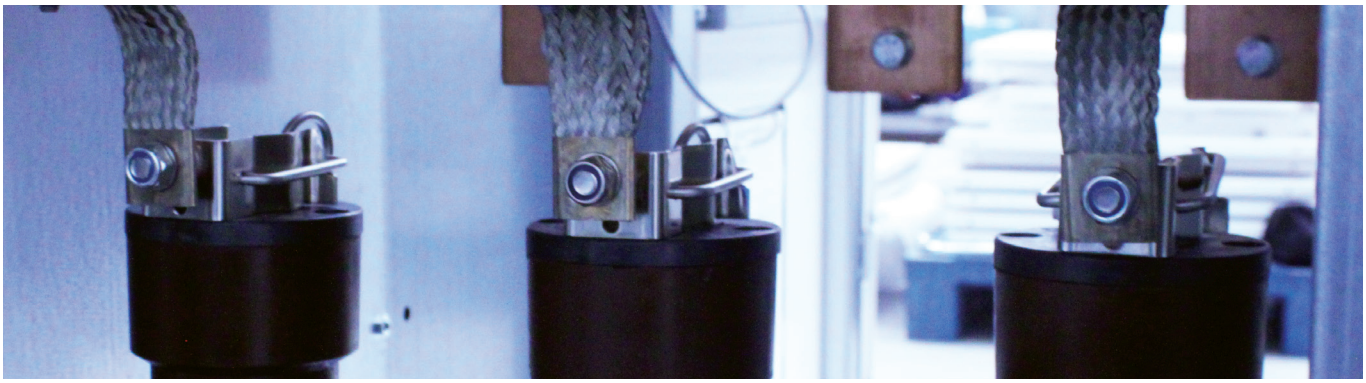
Bus tie.





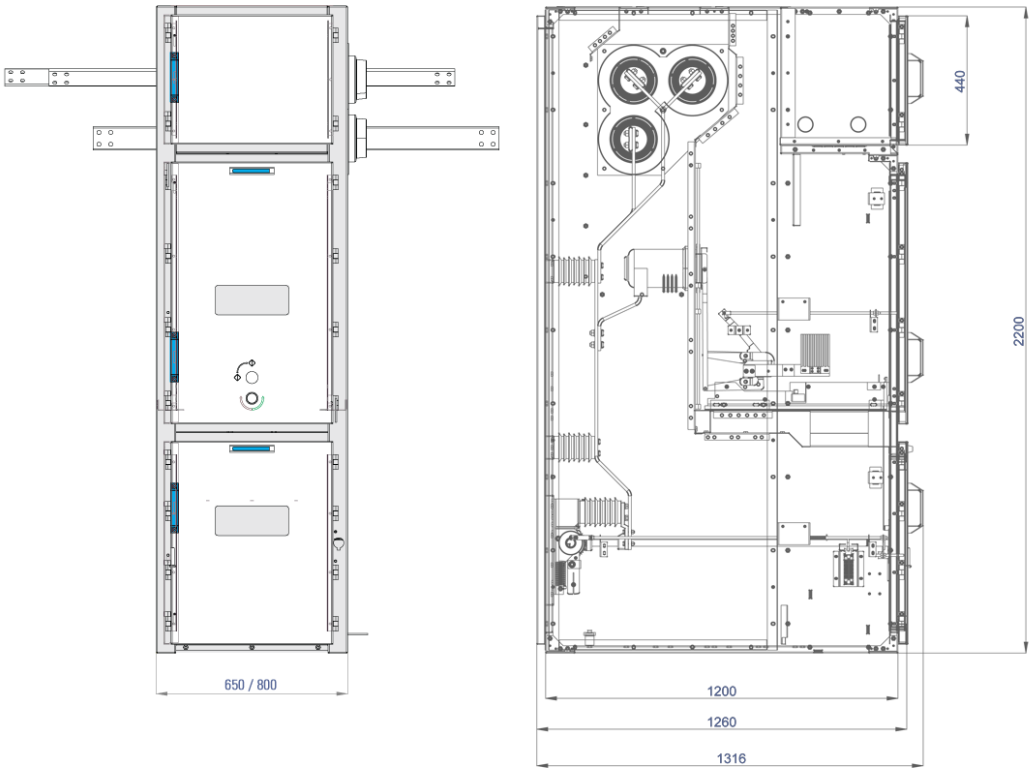
SPECIFICATIONS & DIMENSIONS

Rated current	A	630-2000
Height	mm	2200
Height with arc venting shields	mm	2500
Height with gas exhaust duct	mm	2600
Width	mm	650/800
Depth	mm	1260

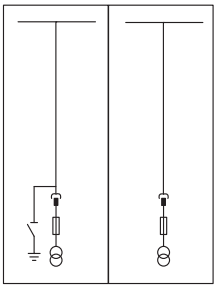


DW-2-M

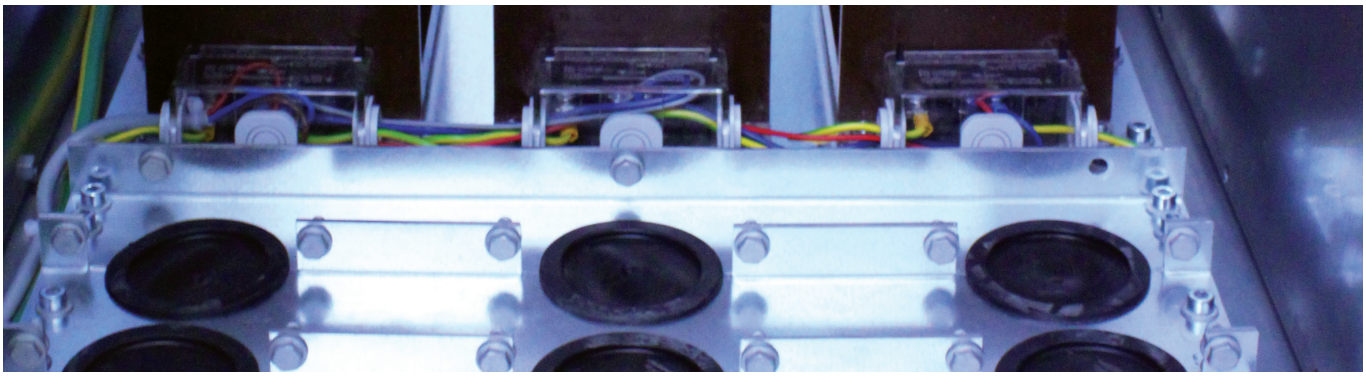
Measurement.



SPECIFICATIONS & DIMENSIONS

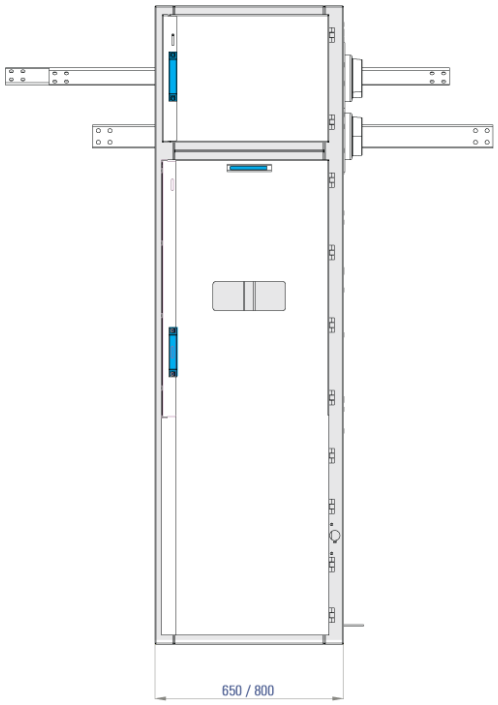


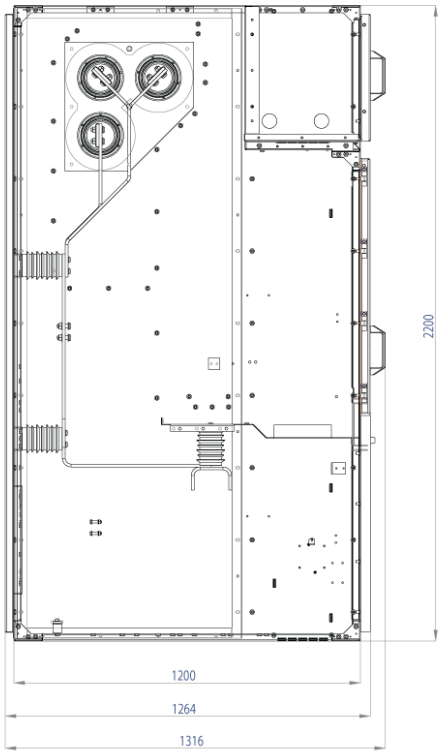
Rated current	A	630-2000
Height	mm	2200
Height with arc venting shields	mm	2500
Height with gas exhaust duct	mm	2600
Width	mm	650/800
Depth	mm	1260

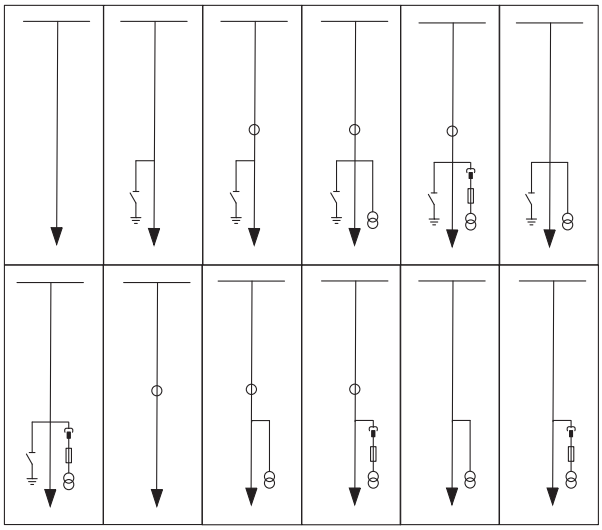


DW-2-DIF

Direct incoming feeder.







SPECIFICATIONS & DIMENSIONS

Rated current	A	630 - 1250	1600-2000
Height	mm	2200	2200
Height with arc venting shields	mm	2500	2600
Height with gas exhaust duct	mm	2600	2600
Width	mm	650/800	800
Depth	mm	1260	1260

OTHER OPTIONS & DIMENSIONS?

Please consult us for options and dimensions other than those mentioned in this catalogue.


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TO LAST!
SGC

4. PRODUCTION PROCESS

4.1. PRODUCTION PROCESS OF THE DW-2 CUBICLES AT NEVELE

The DW-2 system is the result of a combination of modern design technologies and economical, ergonomic and environmentally friendly production processes.

It all starts in the design department where your drawings will be customized via CAD applications. As soon as the drawings are approved, production can start. SGC - SwitchGear Company's steel plate department works with the most modern machinery, programmed by a CAD/CAM system.

The automated laser, punch and pleating section can truly be considered unique. Two ultra-fast punch-corner cutting scissor machines are each provided with an automatic loading and sorting system which sorts and saves the items.

The numerous possibilities of the matrixes and plate feeders ensure that the cubicles can be uniformly produced as 100% user-friendly.

After the laser and punch processing, several panels are pleated on the fully automatic pleating bank, sorted and possibly moved on to a CNC-operated welding robot. This machine welds the fitting bolts and corners of the door panels and other parts.

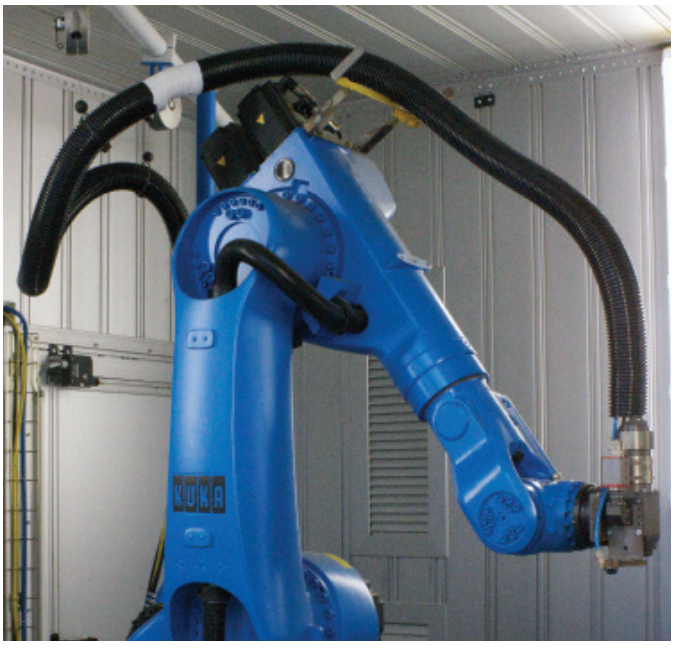
The doors are now subjected to a complete process where they are degreased, stained, phosphated, passivated and given an additional rinse with demineralised water.

They are automatically sprayed with polyester powder in a powder spray cabin, after which they are heated in an oven at 200°C.

The complete cubicle structure has been constructed out of high-quality galvanized plates, it is resistant to corrosion and has a long life span.



"DW-2: modern technology & ergonomic, eco-friendly production processes..."



In the assembly hall the specialized units are first pre-assembled. This division allows us to devote the necessary care to obtaining a perfect balance with, and a correct assembly of the various components. In the next stage the cubicles are assembled. This stage is subject to strict assembly procedures.

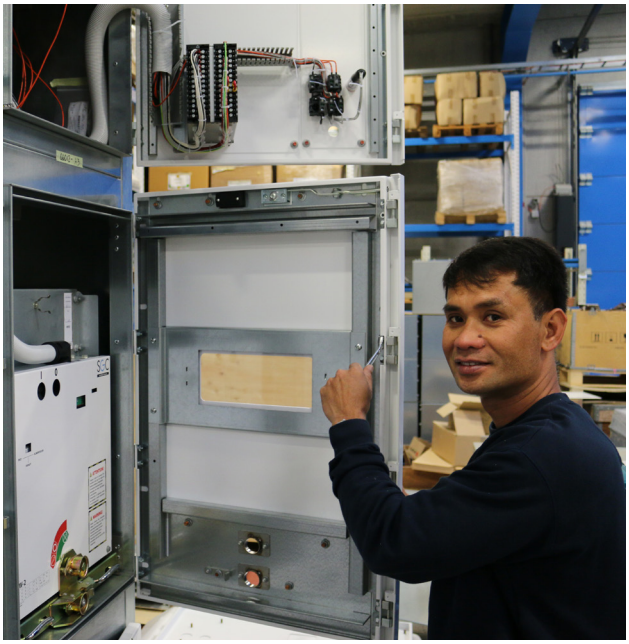
After assembly, all cubicles undergo an extremely thorough control. The electrical tests include resistance measurements on the circuit breaker switch and earthing switch. The cubicle is subjected to a voltage test of 28 kV / 1 min. The most striking test is the one where the closing speed of the load break switch and earthing switch is measured. One can even check the post-vibration of the electrical points during switching on a digital screen. The mechanical tests are used to check all fitting material, and to examine the correct positions of parts and interlocks.

Right before being dispatched the cubicles will undergo a final control; this is where custom, optional features will be installed and checked separately.

The cubicle is now ready for dispatch ... to a happy and satisfied customer!



"Our cubicles are resistant to corrosion and have a long life span..."





SGC offers solutions for all kinds of applications



Get impressed.
Visit our showroom virtually.

Metal Enclosed

- Air insulated
- Always extendible
- Minimal amount of SF_6 (LBS)
- Switchgear is compartmentalized

Metal-Clad

Suitable for heavy industry and power stations

Ring Main Unit

- Gas insulated
- Compact monobloc
- Lateral extension optional

Other SF_6 free solutions

- Extendible blocs
- Switchgear is compartmentalized

INTERESTED IN OUR PRODUCTS,
PRODUCTION PROCESS OR PLANT?
Please contact our Sales Team. Send an e-mail to sales@switchgearcompany.eu for a guided tour, information on our products or visit our website www.switchgearcompany.eu



DF-2(+)

- Modular design
- Two position load break switch
- LSC 2A
- Ur:12-24kV;Ir:630-1250A



DF-3(+)

- Compact modular design
- Three position load break switch
- LSC 2A
- Ur:12-24kV; Ir: 630A



DW-2

- AIS - SF_6 Free
- Withdrawable circuit breaker with metallic shutters
- 4 separate compartments
- LSC 2B
- Ur:12-17.5kV; Ir: 630-2000A



GI-2

- Gas insulated switchgear
- Modular
- Ur: 12/17,5/24 kV
- Ir: 630-1250-1600-2500 A



DR-6(+) /DT-6(+)

- Monobloc with cable feeder and/orswitchfusecombination
- Extensionwithmonoblocand/or individual units
- Threepositionloadbreakswitch
- LSC 2A
- Ur:12-24kV; Ir: 630A



DI-2

- Monobloc with cable feeder and/orswitchfusecombination
- Extensionwithindividualunits
- Twopositionloadbreakswitch
- LSC 2A
- Ur:36kV; Ir: 400-630A



SI-2

- Modular
- Twopositionloadbreakswitch
- IP 68
- LSC 2A
- Ur:12-15kV; Ir: 630A



N_2 Blue

- Insulationmedium:Nitroge
- Flexible modular system
- Ur: 17,5 kV; Lr: 2500 A



SGC - SwitchGear Company nv

Medium voltage switchgear, built to last.

SGC - SwitchGear Company nv has been supplying reliable products for electrical distribution for more than 45 years. Innovative ideas and environmental care are the driving forces behind SGC - SwitchGear Company nv. The development of complete solutions consists of a minimum number of components, all of which have an exceptional life span. SGC - SwitchGear Company nv stands for exceptional quality and superior customer care. Your desired specifications and deadlines are our main concern.

An exclusive factory and highly automated production lines are key factors in our "state of the art" components and systems. It enables us to develop the DF-2, DR-6/DT-6, DF-3 ,DI-2, SI-2, DW-2, N_2 Blue and GI-2 to the highest quality standards.
When it comes to delivery times, prices and products SGC - SwitchGear Company nv delivers.

SGC
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