GBC-A cubicle :

Manufacturer		: Schneider Electric Industries SA
Designation		: Schneider Electric **GBC-A**
Number of poles		: 3
Phase to phase	**mm**	: 200
Rated voltage	**kV**	: 24
Lightning impulse withstand voltage	**kV**	: 125
Power frequency withstand voltage	**kV**	: 65
Short time withstand current	**kA**	: 25
Peak withstand current	**kÂ**	: 65
Duration of short circuit	**s**	: 1
Rated normal current	**A**	: 630
Frequency	**Hz**	: 50/60Hz
Degree of protection		: IP3X
Drawing n°		: GBC-A: 373110602rev01

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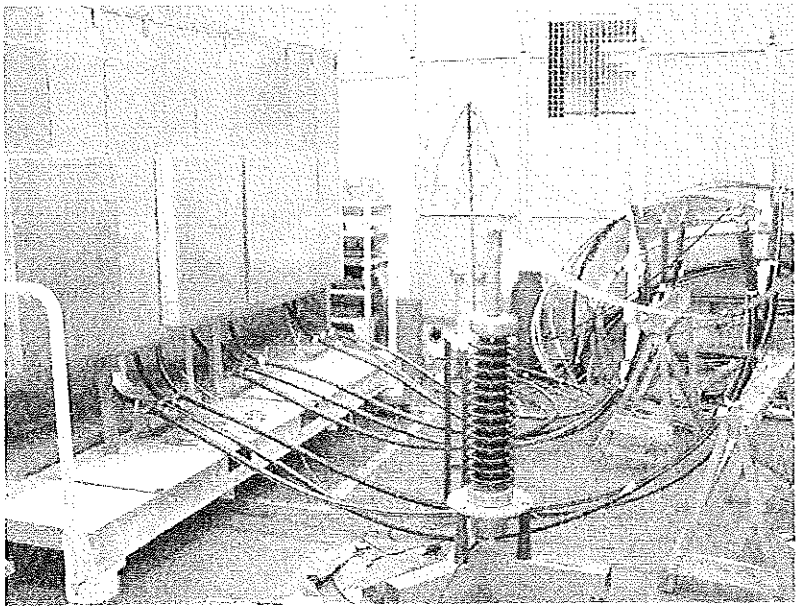
2 TEST DESCRIPTION

Test conditions :

- **Ambiant air conditions during test :**

Date		21/09/09		22/09/09		23/09/09		24/09/09	
		AM	PM	AM	PM	AM	PM	AM	PM
Dry temperature	℃	22	23	22	23	-	23	22	-
Pressure	Pa (.10²)	990	990	993	993	-	994	990	-
Humidity	$g.m^3$	11,55	11,02	11,55	12,05	-	11,02	11,55	-
Correction factor	K	0,9707	0,9674	0,9736	0,9703	-	0,9713	0,9707	-

- **Test Picture :**



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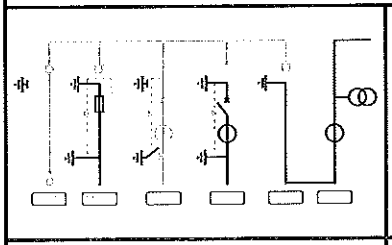
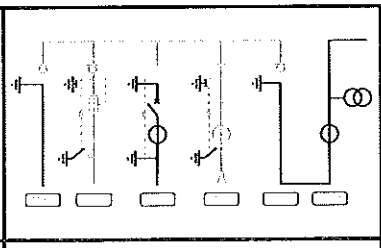
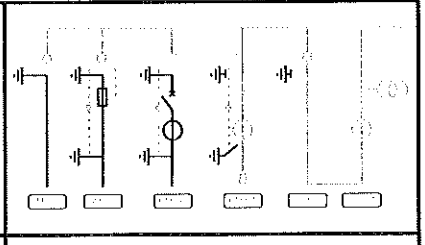
3 RESULTS

Results of the lightning impulse voltage tests:

Diagram		
		
Test 1	Test 2	Test 3

Test voltage (kV) : **125 x K**
Wave shape (µs) : **1.2 / 50 µs**

Fifteen consecutive lightning impulses at the rated withstand voltage are applied for each test condition and each polarity, preceded by 2 conditioning shocks of 80 % and 100 % of the test voltage.

Test n°	*Voltage applied to*	*Disruptive discharge*	
		polarity +	*polarity -*
1	*a*	0	0
	b	0	0
	c	0	0
2	*a*	0	0
	b	1 (impulse n°10)	0
	c	0	0
3	*a*	0	0
	b	0	0
	c	0	0

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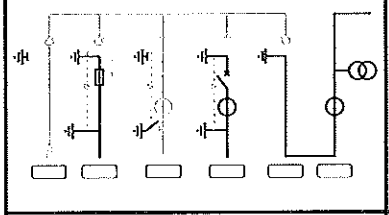
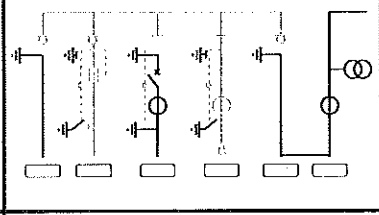
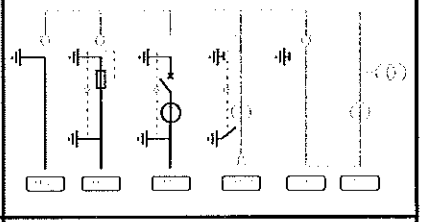
Results of the power frequency voltage tests:

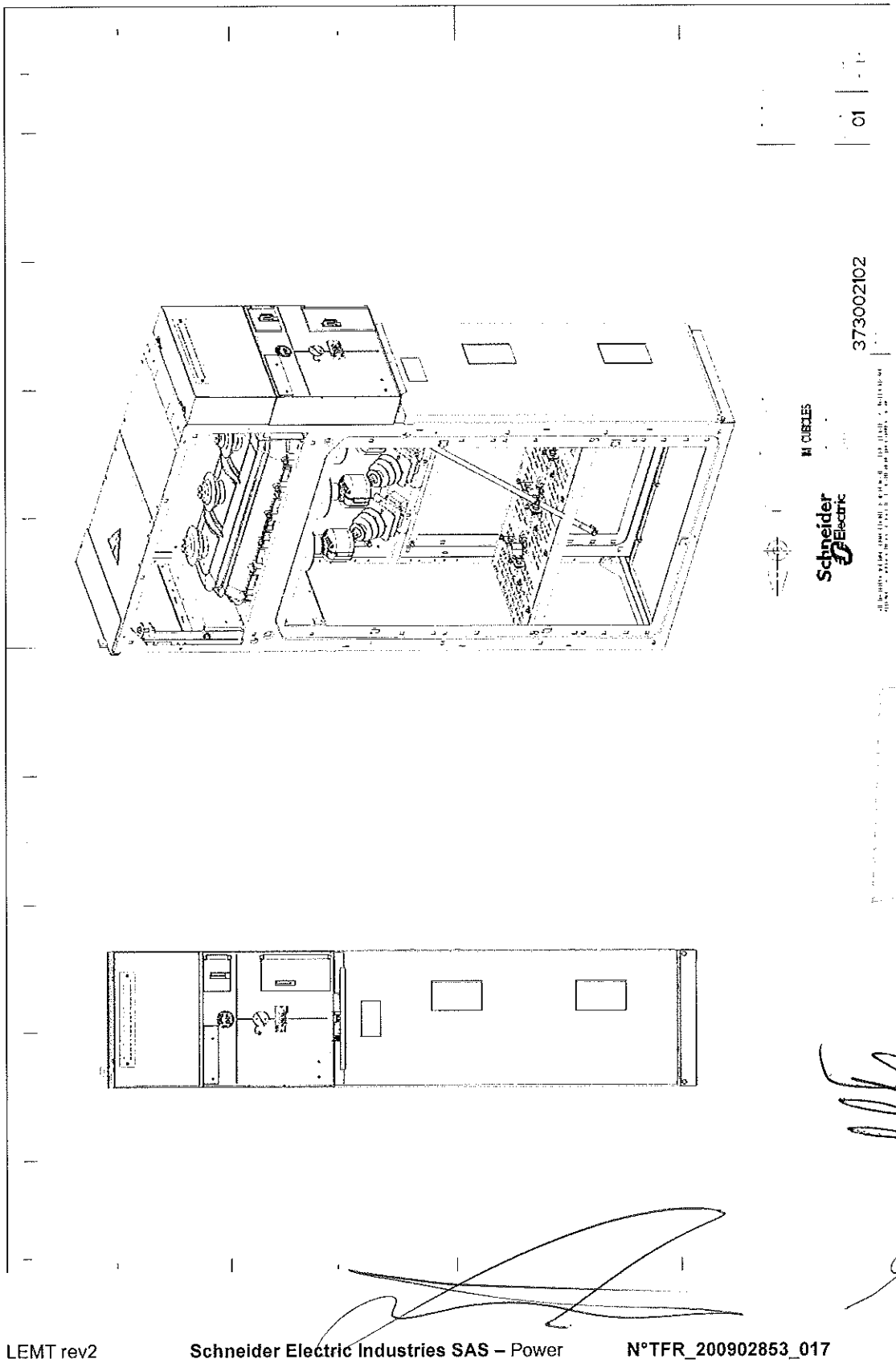
Diagram		
		
Test 1	Test 2	Test 3

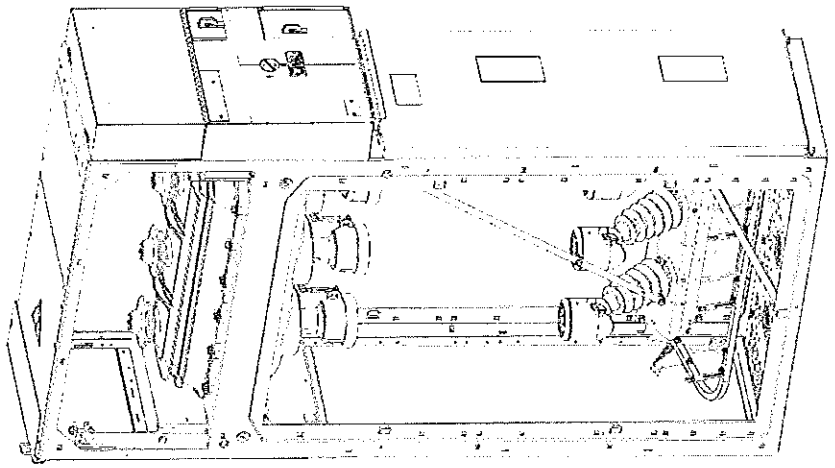
Test voltage (kV) : **65 x K**

The test voltage is raised for each test condition to the rated withstand voltage and is maintained during 1 minute.

Test n°	*Voltage applied to*	*Resulst*
1	a	OK
	b	OK
	c	OK
2	a	OK
	b	OK
	c	OK
3	a	OK
	b	OK
	c	OK

4 DRAWING





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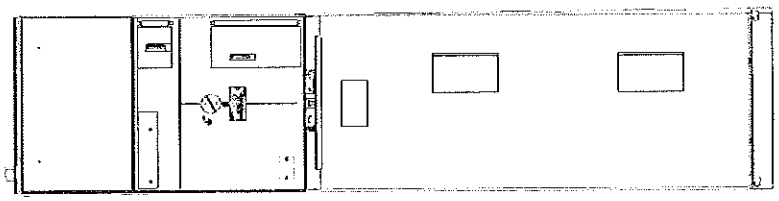
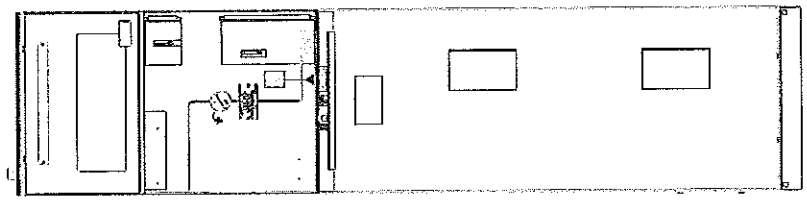
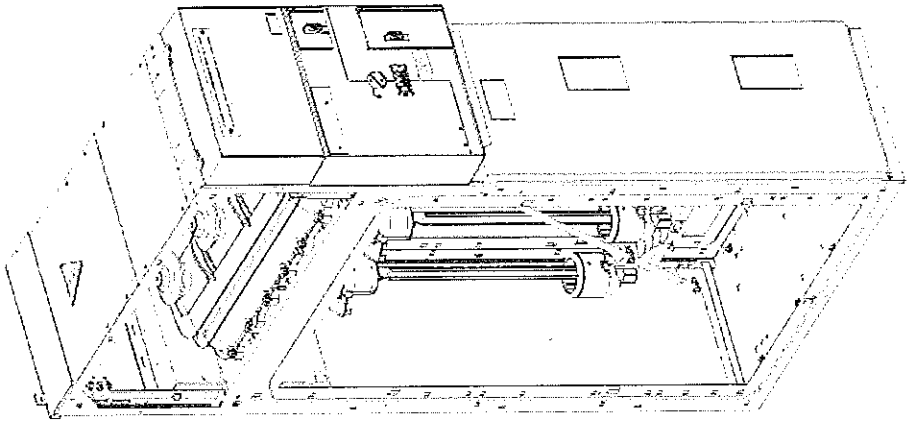
3730023O2

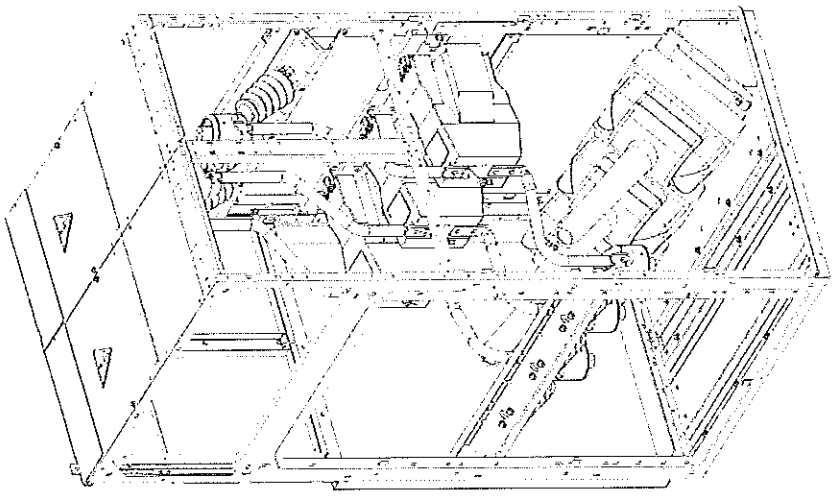
GM CUBICLE

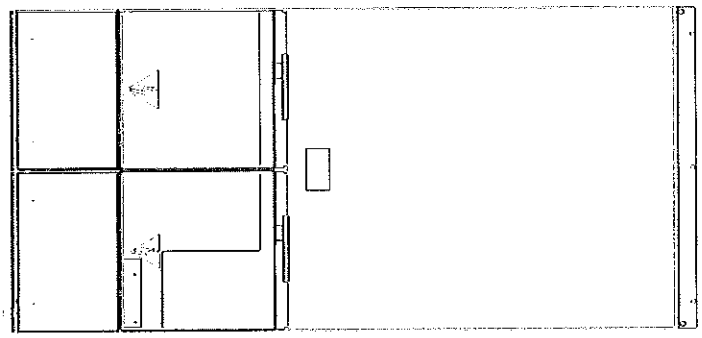
Schneider Electric

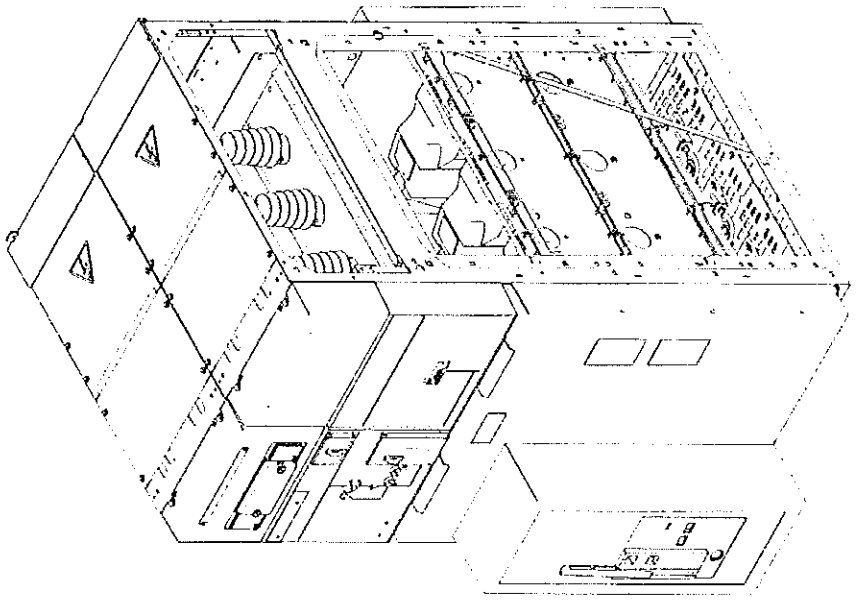












SUB ASSEMBLING CUBICLE DMT-A

372984002

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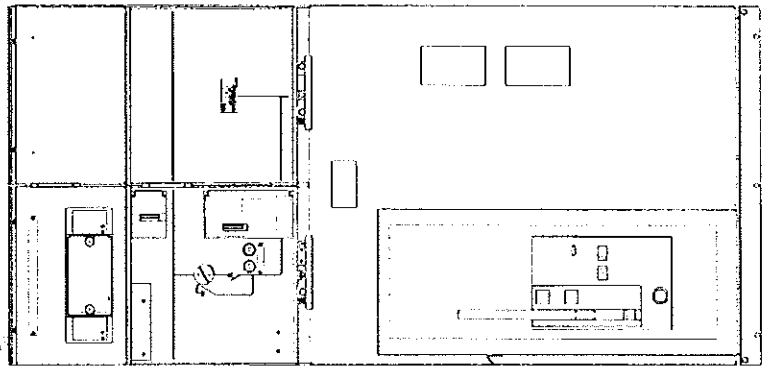
Schneider Electric



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Your ref. : CEZ , Technic Energy
Date : 7.6.2016

PROJECT: CEZ

PART: ELECTRICAL PART

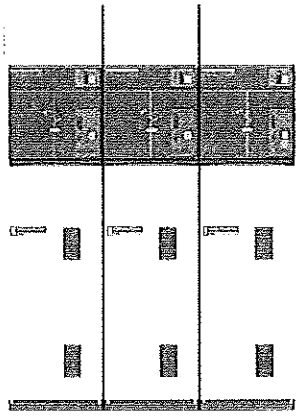
OFFER

for

SUPPLY OF MV ELECTRICAL EQUIPMENT

TECHNICAL PART

- 20 kV Modular Switchboards type SM6



June, 2016

Your ref. : CEZ , Technic Energy
Date : 7.6.2016

TABLE OF CONTENTS

DESCRIPTION PAGE

GENERAL

Main Considerations and Assumptions

This Offer has been elaborated on the basis of the Technical Specification for the MV Part of the Project Documentation for **CEZ Substations**.

1. 20 kV Switchgear

The Offer has been elaborated on the basis of MV Switchgear type **SM6 – metal enclosed** corresponding exactly to the dimensions and descriptions indicated in the respective Drawings of the Tender Documentation.
The cubicles are equipped with SF6 circuit breakers and or SF6 Switch Disconnectors with or without fuses) as per the requirements. The necessary metering is provided. (The utility energy meters are not included in the scope of supply)

The details of the Technical solutions proposed are elaborated on the following pages.

OVERALL SCOPE OF SUPPLY

Equipment

Here below the Overall Scope of Supply covered by this offer is summarized. The details for each of the equipment types are elaborated in the respective Technical description. There are two substation:

Substations

Substation „Sadinata"	Type	Quantity
	IM	1
	QM	1
	IMB	1
	GBM	1
	Set of common parts	1
	Lever drive	1

TECHNICAL DESCRIPTION OF EQUIPMENT

Your ref. : CEZ , Technic Energy
Date : 7.6.2016

MV SWITCHGEAR TYPE SM6 (20 KV)

QUANTITIVE DESCRIPTION OF SUPPLY

MV SUBSTATIONS:

The number and quantity of cubicles types are elaborated in the detailed technical descriptions for each substation switchboard given in the pages hereafter as well as the respective drawings given in the Appendix.

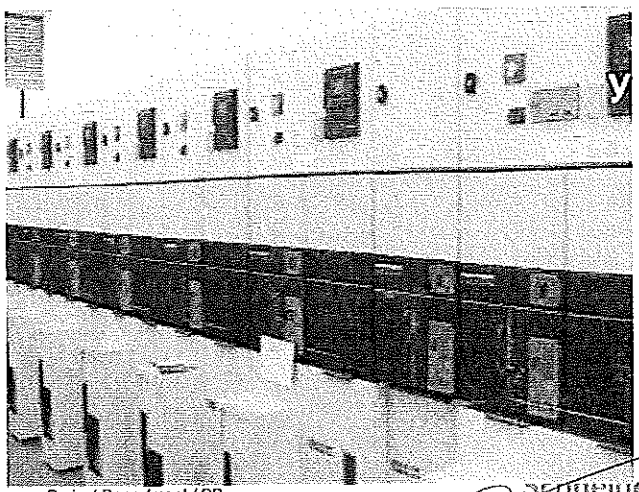
The overall number of cubicles is given here-below:

Item	Description – Substation „Sadinata"		Cubicle Type	Total Quantity
1	Fuse-switch combination unit	**SM6-24**	**QM**	1
2	Switch Disconnector Cubicle	**SM6-24**	**IM**	1
3	Switch Disconnector Cubicle – right extensible	**SM6-24**	**IMB**	1
4	Coupler – left extensible	**SM6-24**	**GBM**	1
5	Set of common parts	**SM6-24**	**Common parts**	1
6	Lever drive	**SM6-24**	**Lever drive**	1

Accessories:

- Side Covers + Operating Lever - **1set**

GENERAL SPECIFICATIONS



The proposed switchboard is SM6 type.

SM6 is indoor, switchgear in metal enclosure designed for the Medium Voltage section of HV/MV substations and high power rated MV/MV substations.

The switching devices are of the **metal enclosed, compartmented type**.

SM6's design takes into account three categories of users' requirements:

- reliability necessary for continuity of power supply
- simple installation, operation and maintenance,

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- safety of operating personnel

SM6 is a range of functional units each made up of :

- ♦ a prefabricated air insulated panel in a metal enclosure of the metal enclosed type,
- ♦ withdrawable switchgear using SF6 as the breaking medium (circuit-breaker)

SM6 offers a number of significant advantages, in order to reply efficiently to even the most stringent of requirements :

- ♦ all commissioning and operations can be carried out from the front of each functional unit, allowing them to be installed directly against a wall, no rear access corridors are therefore required
- ♦ simplification of development and increased reliability through the use of functional units, made up of elements manufactured by MERLIN GERIN which are designed to function together
- ♦ very low maintenance costs, and service continuity.
- ♦ simple and safe operation through the use of coloured mimic diagrams and a comprehensive range of internal security functions and interlocks.

CUSTOMER DOCUMENTS USED FOR THE OFFER

- Drawings
- Technical Specification

APPLICABLE STANDARDS

The equipment proposed in this offer has been designed, manufactured and tested according to the relevant IEC recommendations.

IEC standards

■ 62271-200 High-voltage switchgear and controlgear - Part 200: A.C. metalenclosed switchgear and controlgear for rated voltage above 1 kV and up to and including 52 kV.

■ 62271-1 High-voltage switchgear and controlgear - Part 1: Common specifi cations.

■ 62271-103 High voltage switches - Part 1: switches for rated voltages above 1 kV and less or equal to 52 kV.

■ 62271-105 High-voltage switchgear and controlgear - Part 105: High voltage alternating current switch-fuse combinations.

■ 60255 Electrical relays.

■ 62271-100 High-voltage switchgear and controlgear - Part 100: High-voltage alternating current circuit breakers.

■ 62271-102 High-voltage switchgear and controlgear - Part 102: High-voltage alternating current disconnectors and earthing switches.

■ 60044-1 Instrument transformers - Part 1: Current transformers.

■ 60044-2 Instrument transformers - Part 2: Voltage transformers.

- 60044-8 Instrument transformers - Part 8: Low Power Current Transducers.

- 61958 High-voltage prefabricated switchgear and controlgear assemblies - Voltage presence indicating systems.

- 62271-206 High-voltage prefabricated switchgear and controlgear assemblies -Voltage presence indicating systems.

UTE standards for 24 kV

- NFC 13.100 Consumer substation installed inside a building and fed by a second category voltage public distribution system.

- NFC 13.200 High voltage electrical installations requirements.

- NFC 64.130 High voltage switches for rated voltage above 1 kV and less than 52 kV.

- NFC 64.160. Alternating current disconnectors and earthing switches

EDF specifications for 24 kV

- HN 64-S-41 A.C. metal-enclosed swichgear and controlgear for rated voltages above 1 kV and up to and including 24 kV.

- HN 64-S-43 Electrical independent-operating mechanism for switch 24 kV - 400 A.

EARTHING

Cable earthing :

Cable earthing is achieved by means of an interlocked earthing switch located in the cable compartment and operated from the front panel. Its operating possibility depends of the position of the withdrawable part, .
Other key or/and electromagnetic locking are also available as an option.

TESTS

The SM6 system panels have undergone the following tests according to the IEC standard 298:

- dielectric tests
- temperature rise tests
- mechanical endurance tests
- electro-dynamic and thermal withstand short-circuit current tests
- behavior in humid environment

SIMPLICITY

All the cubicles in a switchboards are of the same depth . They may be installed against a wall and set up on a simple civil engineering structure.

Little effort is required for local manual operations.

Icon-illustrated instructions on each front panel make the operating sequence and switching device status very simple to understand.

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Interlocks and padlocks prevent operator's errors.

Maintenance is limited to simple, routine operating checks and cleaning and greasing every 5 to 10 years.

SAFETY

All operations are performed on the front, including access to the connections and busbars.
Several complementary levels of safety protect the operator:

- the very comprehensive set of mechanical and electrical interlocks prevents operator errors.
- the power ON indicator's are situated on the front of the functional unit, near the earthing switch operating mechanism.
- the earthing switch operated by means of an anti-reflex handle, has making capacity

ANTI CORROSION PROTECTION AND FINISHING

In order to allow equipment to be installed under severe climatic conditions the following measures are systematically adopted:

- The visible external surfaces on the front of the panels are made of electro-plated sheet steel (zinc thickness : 3 µm)
- The painted surfaces are cleaned prior to painting using a phosphate cleaning treatment. The paint itself is apolymerised epoxy polyester powder mix. (the average thickness of the polymerised film is 50 µm). The colour of the framework is **RAL 9002** (white)
- For all other surfaces continuous hot galvainised sheet metal is used (average zinc thickness 20 µm) which has undergone a chrome passivation finishing treatment.

NORMAL OPERATING CONDITIONS

Normal operating conditions, according to IEC 694 for indoor switchgear:

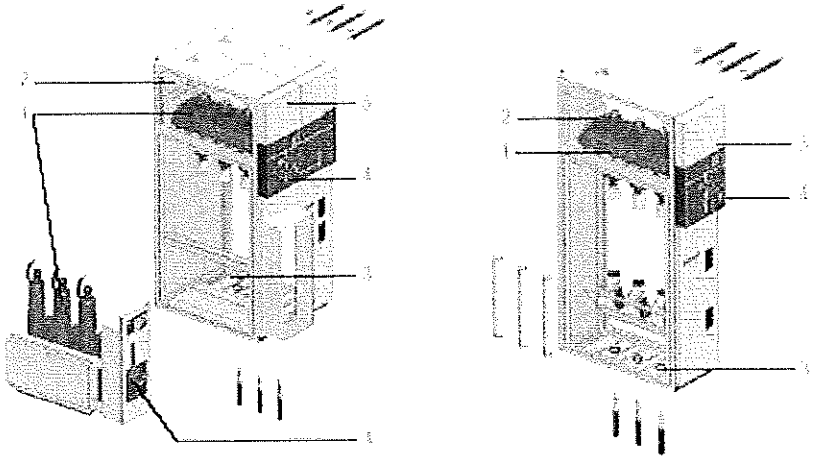
General characteristics

Architecture	In metal enclosures, Metal enclosed type, air insulated (IEC 298)
Protection degree	IP2X (IEC 529)
Normal service conditions	Indoor equipment (IEC 294) .
• Temperature :	
- min	- 5°C
- max	+40°C
- average over 24 hours	+35°C
• Altitude • Atmosphere:	below or up to 1000 m little or no dust, smoke, corrosive or inflammable gas and vapour or salt
• Humidity	
- over 24 hours	less than or equal to 95 %
- over 1 month	less than or equal to 90 %

CUBICLES

The SM6 cubicles are earthed, made up of factory-built metal enclosures, of the **metal-enclosed** type in accordance with standard IEC 298.

They comprise three compartments separating the different functions by means of interconnected partitions:



Switchgear and Cable compartment

This compartment is closed by a covering panel and contains:

- The breaking or switching unit, in either the disconnected or service.
- The units disconnecting/connecting mechanism
- The connecting plug for the units electrical control and signals
- The MV cable connection pads or the lower busbars
- The capacitive dividers which indicate voltage presence
- The earthing switch with making capacity
- The current transformers
- The fixed voltage transformers

Busbar compartment

- The main busbars
- The epoxy resin enclosed Busbar Disconnecting switch (it separates the busbar compartment from the Switchgear compartment) The disconnector switch serves also as busbar support

Low voltage compartment

- The protection and control unit
- The control synoptic

- The low voltage auxiliaries including the MCCB's

FACTORY TESTS

Routine factory testing in accordance with IEC standards, is provided for in this offer and includes the following:

- Check of conformity with wiring diagrams and plans,
- Mechanical operation tests, and checking of interlocks,
- Testing of the interchangeability of moving parts,
- High voltage dielectric tests at the power frequency. The busbar will be tested at site at 80% of the voltage level requested by IEC standards
- Low voltage dielectric tests,
- Low voltage functional checking.

LIMIT OF SUPPLY

This technical offer is valid for the supply of equipment in strict compliance with the specified quantities and the detailed technical description included in this quotation.
Generally speaking, all equipment or services not explicitly mentioned in our offer are not included such as:

- Cables, cable termination kits and lugs,
- Site services such as installation and commissioning,
- Upstream and downstream interlocking not explicitly mentioned in this offer
- Alternative or direct current auxiliary supplies,
- Factory acceptance tests,
- Type tests,
- Spare parts.

CERTIFICATION

SCHNEIDER ELECTRIC quality system is conform to the requirements of the standards ISO 9001.

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Date : 7.6.2016

CHARACTERISTICS OF THE ENCLOSURE

ELECTRICAL CHARACTERISTICS

20 kV MV switchboards:

Service voltage	kV	20
Insulation level :		
Rated voltage	kV	24
Rated insulation level at power frequency	kV rms	50
Peak withstand voltage (1,2 / 50 µs)	kV peak	125
auxiliary circuits (wiring and terminals)	kV/1min.	2
Rated frequency (power frequency) :	Hz	50-60 Hz
Short time withstand current :		
for equipment:	kA	16/1s
for circuit breaker	kA	16/1s
Peak withstand current	kA peak	40
Busbar rated continuous current	A	630

BUSBARS

Material:		Insulated copper
Size:	630A or 1250A:	tubular in each phase

CONNECTIONS

Connections in the incomings:	1-core cable 2 x 1 pc < 240 mm ²
Connections in the feeders:	1-core cable 1 x 1 pc < 240 mm ²
Connections for transformers:	1-core cable 1 x 1 pc < 95 mm ²
Material of connection cables:	Cu or Al equally

DIMENSIONS (L x D x H) in mm / WEIGHTS in kg

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Your ref. : CEZ , Technic Energy
Date : 7.6.2016

To be elaborated during design phase

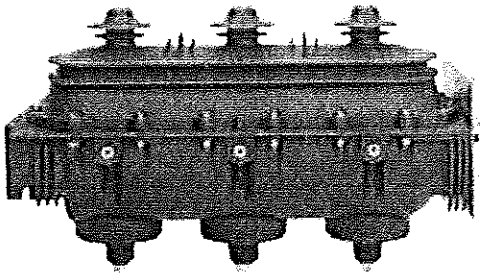
LIST OF SUPPLIERS

♦ High voltage equipment	SCHNEIDER ELECTRIC
♦ Voltage and current transformers	SCHNEIDER ELECTRIC
♦ Protection relays	SCHNEIDER ELECTRIC
♦ Locks for interlocking	PROFALUX - RONIS
♦ Auxiliary relays	SCHNEIDER ELECTRIC
♦ Lamps, push buttons	SCHNEIDER ELECTRIC
♦ Connectors, terminal blocks	SCHNEIDER ELECTRIC
♦ Switches, push-buttons, lamps	SCHNEIDER ELECTRIC
♦ Miniature circuit-breakers	SCHNEIDER ELECTRIC

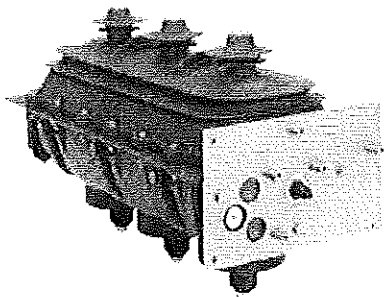
EQUIPMENTS:

SWITCH DISCONNECTORS

All Switch-Disconnector cubicles (IM,IMB cubicle) are with a three-position Switch-disconnector with "closed", "open" and "earthed" position.



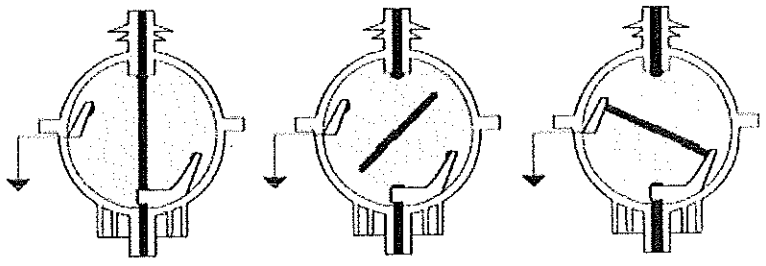
Switch compartment :
This compartment is separated from the busbar compartment and the connection compartment by the enclosure surrounding the switch, the disconnector and the earthing switch.



Switch-disconnector for 24 kV

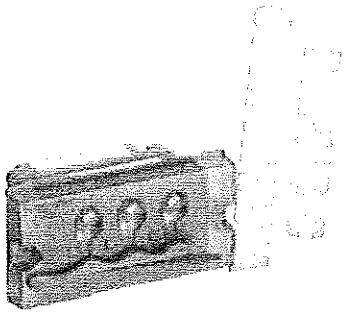
Switch or disconnector and earthing switch :
* Gas tightness
The three rotating contacts are placed in an enclosure fi lled with gas to a relative pressure of 0.4 bar (400 hPa) for 24 kV and 1 bar (1000 hPa) for 36 kV. It satisfy as "sealed pressure system" requirements and seal tightness is always factory checked, and leakage rate is less than 0.1% for 30 years life span.
* Operating safety v the switch may be in one of three positions: "closed", "open", or "earthed", representing a natural interlocking system that prevents incorrect operation.
Moving-contact rotation is driven by a fast-acting mechanism that is independent of the action of the operator.
- the device combines the breaking and disconnection functions.
- the earthing switch placed in the SF6 has a short-circuit making capacitive,in compliance with standards.

- any accidental over-pressures are eliminated by the opening of the safety membrane, in which case the as is directed toward the back of the unit, away from the operator.



* Insensitivity to the environment
- parts are designed in order to obtain optimum electrical fi eld distribution.
- the metallic structure of cubicles is designed to withstand and aggressive environment and to make it impossible to access any energised part when in operation.

VOLTAGE INDICATING SYSTEMS



Voltage Presence Indicating System
VPIS complies with IEC 61958 and 62271-206 standard allowing to indicate the voltage presence on each phase with LEDs. Designed for harsh environments so that to guarantee high reliability in MV/LV susbstations worldwide. Exits in Voltage Output version to provide voltage presence information to VD23 voltage presence relay.

FUSE PROTECTION OF TRANSFORME

Fuses

Fuse ratings for SM6 protection units such as PM, QM, QMB and QMC depend, among other things, on the following criteria:
b transformer rating
b fuse technology (manufacturer)
Different types of fuses with medium loaded striker may be installed:
v Solefuse fuses as per standard UTE NCF 64.210
v Fusarc CF fuses as per IEC 60.282.1 recommendation and dimensions are related to DIN 43.625 standard.
For fuse-switch combination unit type QM, QMB, QMC, refer only to the selection table and reference list of fuses. For all other type of fuses, consult us.
Example: for the protection of a 400 kVA transformer at 10 kV, select either Solefuse fuses rated 43 A or Fusarc CF fuses rated 50 A.

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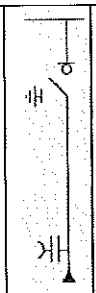
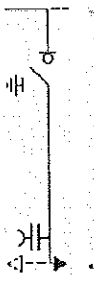
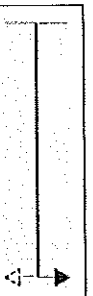
Date : 7.6.2016

TECHNICAL SPECIFICATIONS

Substation	MV – SWITCHBOARD

Single line diagram				
Cubicle Nr.	2	2	3	4
Cubicle Type	IM	QM	IMB	GBM
Rated Voltage,	24 kV	24 kV	24 kV	24 kV
Service Voltage	20 kV	20 kV	20 kV	20 kV
Rated Isc	16 kA	16 kA	16 kA	16 kA
Busbar	630 A	630 A	630 A	630 A
Three position Switch disconnector – earthing switch	630A	630A	630A	-
Three position Disconnector – earthing switch	-	-	-	-
Driving mechanism	CIT	CI1	CIT	-
Interlocking	-	-	-	-
Aux. Contacts	2O-2C	2O-2C	2O-2C	-
Motor operation	-	-	-	-
Circuit Breaker	-	-	-	-
Operation Mechanism	-	-	-	-
Tripping coil	-	Yes	-	-
Aux. Contacts	-	-	-	-
Fuses	-	-	-	-
Current Transformers / (Current Sensors)	-	-	-	-
Voltage Transformers	-	-	-	-
Zero sequence	-	-	-	-
Downstream earthing switch	Yes	Yes	-	Yes
Voltage indicators	Yes	Yes	Yes	Yes
LV Compartment	-	-	-	-
Protection Unit	-	-	-	-

НАШАТА ПОЛИТИКА ПО ОКОЛНА СРЕДА

Цели на Schneider Electric:

➔ **Намаляване** влиянието на нашите продукти и решения върху околната среда през целия им цикъл на живот, като оптимизира тяхната консумация на енергия и природни ресурси, предлагайки решения за рециклиране след изчерпване на употребата им.

➔ **Предлагане** на услуги, които опазват околната среда и помагат на клиентите ни да оптимизират използването на енергията.

➔ **Ограничаване до минимум** влиянието на нашите съоръжения върху околната среда, особено чрез редуциране на консумацията на природни ресурси и генерирането на отпадъци и емисии, свързани с дейностите на Дружеството, и чрез прилагането на Най-добрите налични техники (ННТ).

➔ **Въвличане** нашите служители, доставчици, партньори и клиенти в процеса на непрекъснато усъвършенстване, за да удовлетвори очакванията на общността.

В съответствие със своите Принципи на Отговорност, Schneider Electric е посветен д а:

➔ **Спазва** изискванията за опазване на околната среда и ги надхвърля, когато е необходимо.

➔ **Проектира** продукти и решения посредством процеси, които отговарят на изискванията за опазване на околната среда.

➔ **Предлага** на своите клиенти продукти и решения, които са безопасни, енергийно ефективни и екологично съобразни.

➔ **Обвързва** иновацията с непрекъснатото усъвършенстване, за да отговори на новите предизвикателства, пред които ни изправя околната среда.

➔ **Насърчава** екологичната осведоменост чрез предоставяне на обучение и разработване на експертни мрежи за най-добри практики.

➔ **Устойчиво подобрява** действията си спрямо околната среда, за да повиши удовлетворението на общностите, които Дружеството обслужва, както и на неговите крайни потребители, служители, клиенти и акционери, днес и в бъдеще.

➔ **Докладва** на всички акционери за влиянието на дейностите на Дружеството върху околната среда.

➔ **Допринася** за екологичното развитие на планетата.

Ние сме ангажирани с опазването на нашата планета.

Октомври, 2007

Жан-Паскал Трикоар

Председател на Борда на Директорите

2158

afaq
AFNOR CERTIFICATION

N° 2001/17395.8

AFNOR Certification certifies that the management system implemented by:
AFNOR Certification удостоверява, че системата за управление въведена от

SCHNEIDER ELECTRIC BULGARIA EOOD
"ШНАЙДЕР ЕЛЕКТРИК БЪЛГАРИЯ" ЕООД

for the following activities:
за следните дейности

PRODUCTION AND SALE OF PRODUCTS AND SERVICES
INTENDED FOR ELECTRICAL INSTALLATIONS.

ПРОИЗВОДСТВО И ПРОДАЖБА НА ПРОДУКТИ И УСЛУГИ,
ПРЕДНАЗНАЧЕНИ ЗА ЕЛЕКТРИЧЕСКИ ИНСТАЛАЦИИ.

has been assessed and found to meet the requirements of:
беше оценена и бе решено, че съответства на изискванията на

ISO 9001 : 2008

and is developed on the following locations:
за следните площадки

Head office: Business Park Sofia, Building 4, Floor 6, j.k. Mladost 4, 1766 SOFIA, BULGARIA
Централен офис: Бизнес парк София, сграда 4, ет. 6, ж.к. Младост 4, 1766 СОФИЯ, БЪЛГАРИЯ

Warehouse: Business Park Sofia, Building 13 B, j.k. Mladost 4, 1766 SOFIA, BULGARIA
Складова база: Бизнес парк София, сграда 13 Б, ж.к. Младост 4, 1766 СОФИЯ, БЪЛГАРИЯ

Production unit: Production Plant of Schneider Electric Bulgaria, 4202 RADINOVO, BULGARIA
Производствена база: Завод на Шнайдер Електрик България, 4202 РАДИНОВО, БЪЛГАРИЯ

Sales office: 258, Vladislav Varnenchik Blvd., Varna Towers - East Tower, fl. 4, 9009 VARNA, BULGARIA
Търговски офис: бул. "Владислав Варненчик" № 258, Варна Тауърс - Източна кула, ет. 4, 9009 ВАРНА, БЪЛГАРИЯ

This certificate is valid from (year/month/day)
(Дата сертифицирането е валидно от (год/мес/ден))

2014-06-04 until 2017-06-04

Managing Director of AFNOR Certification
Генерален Директор на AFNOR Certification

F. MÉAUX

afnor

11 rue Francis de Pressensé - 93571 La Plaine Saint-Denis Cedex - France - T. +33 (0)1 41 62 80 00 - F. +33 (0)1 49 17 90 00

2159

N° 2005/24427.6

AFNOR Certification certifies that the management system implemented by:
AFNOR Certification удостоверява, че системата за управление внедрена от

SCHNEIDER ELECTRIC BULGARIA EOOD
"ШНАЙДЕР ЕЛЕКТРИК БЪЛГАРИЯ" ЕООД

for the following activities:
за следните дейности

PRODUCTION AND SALE OF PRODUCTS AND SERVICES
INTENDED FOR ELECTRICAL INSTALLATIONS.

ПРОИЗВОДСТВО И ПРОДАЖБА НА ПРОДУКТИ И УСЛУГИ,
ПРЕДНАЗНАЧЕНИ ЗА ЕЛЕКТРИЧЕСКИ ИНСТАЛАЦИИ.

has been assessed and found to meet the requirements of:
беше оценена и бе решено, че съответства на изискванията на

ISO 14001 : 2004

and is developed on the following locations:
за следните площадки

Head office: Business Park Sofia, Building 4, Floor 6, j.k. Mladost 4, 1766 SOFIA, BULGARIA
Централен офис: Бизнес парк София, сграда 4, ет. 6, ж.к. Младост 4, 1766 СОФИЯ, БЪЛГАРИЯ

Warehouse: Business Park Sofia, Building 13 B, j.k. Mladost 4, 1766 SOFIA, BULGARIA
Складова база: Бизнес парк София, сграда 13 Б, ж.к. Младост 4, 1766 СОФИЯ, БЪЛГАРИЯ

Production unit: Production Plant of Schneider Electric Bulgaria, 4202 RADINOVO, BULGARIA
Производствена база: Завод на Шнайдер Електрик България, 4202 РАДИНОВО, БЪЛГАРИЯ

Sales office: 258, Vladislav Varnenchik Blvd., Varna Towers - East Tower, fl. 4, 9009 VARNA, BULGARIA
Търговски офис: бул. "Владислав Варненчик" № 258, Варна Тауърс - Източна кула, ет. 4, 9009 ВАРНА, БЪЛГАРИЯ

This certificate is valid from (year/month/day) 2014-06-04 until 2017-06-04
(Този сертификат е валиден от (год./мес./ден) *до*

Managing Director of AFNOR Certification
Генерален Директор на AFNOR Certification

F. MÉAUX

1160

N° 2011/41503.1

AFNOR Certification certifies that the management system implemented by:
AFNOR Certification удостоверява, че системата за управление внедрена от

SCHNEIDER ELECTRIC BULGARIA EOOD
"ШНАЙДЕР ЕЛЕКТРИК БЪЛГАРИЯ" ЕООД

for the following activities:
за следните дейности

PRODUCTION OF PRODUCTS FOR ELECTRICAL INSTALLATIONS.

ПРОИЗВОДСТВО НА ПРОДУКТИ ЗА ЕЛЕКТРИЧЕСКИ ИНСТАЛАЦИИ.

has been assessed and found to meet the requirements of:
беше оценена и бе решено, че съответства на изискванията на

OHSAS 18001 : 2007

and is developed on the following locations:
за следните площадки

Production Plant of Schneider Electric Bulgaria, 4202 RADINOVO, BULGARIA
Завод на Шнайдер Електрик България, 4202 РАДИНОВО, БЪЛГАРИЯ

This certificate is valid from (year/month/day): 2014-06-04 to 2017-06-04

Managing Director of AFNOR Certification
Генерален Директор на AFNOR Certification

F. MÉAUX

afnor

Политика на качество

Приоритет номер едно за всички нас
в Шнайдер Електрик е

удовлетвореността на клиента

- Предлагаме изключителни решения, продукти и услуги
- Имаме професионален подход към исканията на клиента
- Гарантираме качество и професионално отношение в целия свят
- Съобразяваме се с изискванията на клиента

- Удовлетвореността на клиента е наш висш приоритет, превъзхождащ всички останали
- Изслушваме внимателно оценките на нашите клиенти и се съобразяваме с тях
- Изпълняваме поетите ангажименти
- Общуваме проактивно и открито

- Нашите мениджъри са пример за служителите си
- Нашите екипи се характеризират със автономност и висока отговорност
- Оценяваме и споделяме най-добрите практики и отношения

Основният показател за качество е удовлетвореността на клиента

Жан-Паскал Трикоар
Президент и Главен изпълнителен директор
декември 2008 г.

2176

ПОЛИТИКА ПО ЗДРАВЕ И БЕЗОПАСНОСТ

Заедно опазваме своите здраве и безопасност

Всички наши служители и партньори трябва да се ползват от възможно най-високите стандарти за здраве и безопасност в работата ни

Неприемливо е поемането на риск, който застрашава здравето и безопасността на хората ни.

Всеки мениджър и служител е отговорен да следва установените практики за безопасна работа, с цел предотвратяване на трудови злополуки и професионални заболявания, както и да се грижи за собственото си здраве.

Искаме да бъдем Компания, която служи за пример по отношение на професионалното здраве и безопасност.

Мениджърите трябва да служат за пример, непрекъснато подобрявайки условията на здраве и безопасност.

Всяка единица ясно определя задълженията и отговорностите на всички нива.

Всички заинтересовани страни (служители и техните представители, доставчици и подизпълнители...) са ангажирани, когато са застрашени здравето и безопасността.

Заедно споделяме Най-добрите практики и се учим от всеки инцидент.

Всяка единица се стреми към непрекъснато подобряване чрез въвеждане на Система за Управление на Здравето и Безопасността при Работа.

Въведената Система за Управление на Здравето и Безопасността при Работа е ефективен начин за поддържане на непрекъснато подобряване на изпълнението.

Тя гарантира постигането на годишните цели за безопасност и здраве.

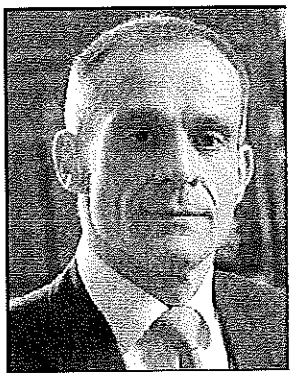
Тя е изградена въз основа на регулярното измерване на риска, спазването на нормативните изисквания и ежегодните програми за превенция.

Нашата корпоративна политика както и основните отговорности са глобално определени и адаптирани към локалната среда.

Глобаният департамент по Здраве и Безопасност е отговорен за разработването на съвместими насоки и изисквания, които да бъдат въведени в Schneider Electric, в съответствие с Нашите Принципи на Отговорност и определението за здраве на Световната Здравна Организация[1].

Тези насоки ще бъдат адаптирани към местната среда, за да обезпечават спазването на законодателните изисквания.

„Разчитам на всеки от вас да изпълнява задълженията си и заедно ще запазим нашето здраве и безопасност".



Жан-Паскал Трикоар,
Президент и
Изпълнителен Директор

[1] *„Здравето е състояние на пълен физически, душевен и социален комфорт, а не просто липса на заболявания или инвалидност".*

Превод от английски език

afaQ
AFNOR CERTIFICATION

Сертификат

№ 2012/50487.1

AFNOR Certification удостоверява, че системата за управление, прилагана от:

SCHNEIDER ELECTRIC FRANCE
Отдел EMT

за следните дейности:

ПРОИЗВОДСТВО И ПРОДАЖБА НА
ЕЛЕКТРОРАЗПРЕДЕЛИТЕЛНО ОБОРУДВАНЕ ЗА СРЕДНО НАПРЕЖЕНИЕ
ЗА ПЪРВИЧНИ И ВТОРИЧНИ СТАНЦИИ,

е оценена и е установено, че отговаря на изискванията на:

ISO 9001 (2008) + ISO 14001(2004) + ILO-OSH (2001)

и е разработена в следните местонахождения:

Usine 38LL ZL de la Verrerie Le Fontanil FR-38050 ГРЕНОБЪЛ СЕДЕКС 9

Описанието на сертифицираните съгласно стандарт дейности и местонахождения са посочени в следните сертификати:

Сертификат ISO 9001 № 1544, предоставен съгласно акредитация № 4-0001.
Сертификат ISO 14001 № 14025, предоставен съгласно акредитация № 4-0001.
Сертификат ILO-OSH № 40535.

Настоящият сертификат е валиден от (дд/мм/гггг) **15.06.2012 год.** До **14.06.2014 год.**

Управляващ директор на
AFNOR Certification

(подпис)

Ф. МЕО

ул. Франсис де Пресенсе 11 – 93571 Ла Плен Сен-Дени Седекс – Франция
Тел. +33 (0)1 41 62 80 00 – Факс +33 (0)1 49 17 90 00
Акционерно дружество с капитал от 18 187 000 евро – 479 076 002 Търговско-промишлен регистър Бобини – www.afnor.org

afnor
CERTIFICATION

Аз, долуподписаната Ирена Василева Славкова, удостоверявам верността на извършения от мен превод от английски език на български език на приложения документ (Сертификат № 2012/50487.1). Преводът се състои от 2 страници.

Преводач:

/Ирена Василева Славкова/

2165

Certificat

Certificate

N° 2012/50487.1

AFNOR Certification certifie que le système de management mis en place par :
AFNOR Certification certifies that the management system implemented by:

SCHNEIDER ELECTRIC FRANCE
Unité EMT

pour les activités suivantes :
for the following activities:

PRODUCTION ET VENTE D'EQUIPEMENTS
DE DISTRIBUTION ELECTRIQUE MOYENNE TENSION (HTA)
POUR POSTES PRIMAIRES ET SECONDAIRES.

PRODUCTION AND SALE OF MEDIUM-VOLTAGE
ELECTRICAL DISTRIBUTION EQUIPEMENT
FOR PRIMARY AND SECONDARY STATIONS.

a été évalué et jugé conforme aux exigences requises par :
has been assessed and found to meet the requirements of:

ISO 9001 (2008)+ISO 14001(2004)+ ILO-OSH (2001)

et est déployé sur les sites suivants :
and is developed on the following locations:

Usine 38LL ZI de la Verrerie Le Fontanil FR-38050 GRENOBLE CEDEX 9

Le détail des activités et sites certifiés par norme est mentionné sur les certificats suivants :
The description of certified activities and locations per standard is mentioned on the following certificates:

Certificat ISO 9001 n° 1544 délivré sous accréditation n° 4-0001.
Certificat ISO 14001 n° 14025 délivré sous accréditation n° 4-0001.
Certificat ILO-OSH n° 40535.

Ce certificat est valable à compter du (année/mois/jour) 2012-06-15 Jusqu'au 2015-06-14
This certificate is valid from (year/month/day) 2012-06-15 *Until* 2015-06-14

Directrice Générale d'AFNOR Certification
Managing Director of AFNOR Certification

F. MÉAUX

2166

TECHNICAL LETTER

Reference number: SM6-24 / 20101301 00

Object designation: SM6-24 medium voltage switchgear

Subject: Mean operating time to failure (MTTF)

Terms We consider the hypothesis that the failure rate is constant during all the useful life time of the equipment (exponential reliability law).
According to this hypothesis and as the Mean Down Time (MDT) is negligible in comparison to the Mean Up Time (MUT), the Mean Operating Time Between Failures (MTBF) is similar to the MTTF.

Formula

$$\text{Failure rate} = \frac{\text{Nb of failures recorded on the equipment during the observation time \{1 year\}}}{\text{(nb of equip. manufactured at the end of the observ. time) X nb of hours in the observ. time \{8760\}}}$$

unit = mean number of failures by hour

$$\text{MTTF} = \frac{1}{\text{failure rate X nb of hours in the observ. time \{8760\}}}$$

unit = years

Result According to the total number of installed SM6 cubicles since 1992, considering the major and critical defects on the 2000 period :

- the operational failure rate is 2,93 10^{-8} failures by hour

- the corresponding MTTF is about 3890 years .

The Quality I Manager:

Name: Mourad JARRAR

Location and date: Grenoble, 01-13-2011

Signature:

Schneider Electric Industries SAS

Adresse postale
Site 38 PLM
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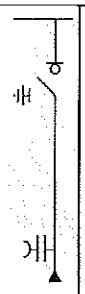
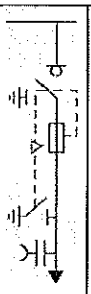
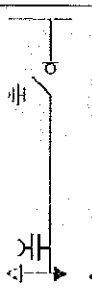
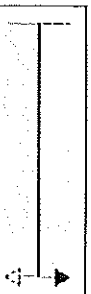
Fax +33 (0)
http://www.schneider-electric.com

Société par Actions Simplifiée au capital de
896,313,776 euros -
954 503 439 RCS NANTERRE
Code APE : 312A - Siret : 954 503 439 01214
N° ident. TVA : FR 04 954 503 439
Siège social :35 rue Joseph Monier
92500 Rueil-Malmaison, France

Single line diagram				
Cubicle Nr.	2	2	3	4
Metering Unit	-	-	-	-
Type	-	-	-	-
Protection Functions	-	-	-	-
Metering Functions	-	-	-	-
Controls	-	-	-	-
Communication	-	-	-	-
Surge arresters	-	-	-	-
Cable connections	Dry 1core ≤ 240 mm²	Dry 1core ≤ 240 mm²	Dry 1core ≤ 240 mm²	Dry 1core ≤ 240 mm²
Dimensions				
Width, mm	375	375	375	375
Depth, mm	1030	1030	1030	1030
Height, mm	1600	1600	1600	1600
Weight, kg	130	140	140	130

ПРИЛОЖЕНИЕ 8

Общество с ограниченной ответственностью
«ЦЕНТР ГЕОДИНАМИЧЕСКИХ ИССЛЕДОВАНИЙ»

125008, г. Москва, 3-й Новомихалковский проезд, д. 9
тел/факс 974-23-48 E-mail: geo_rc@tlms.ru

ЛИЦЕНЗИЯ ЦО-12101-3831 от 20 ноября 2007 г.

УТВЕРЖДАЮ
Заместитель Главного инженера
ОАО «СПИИП»
Ю.Б.Габровский
«__» октября 2009

ЛИЦЕНЗИЯ Д 918538
ГС-1-99-02-26-0-7708183749-055379-2
от 06.08.2007 г.

УТВЕРЖДАЮ
Генеральный директор ООО «ЦГИ»
О.А. Савич
«27» октября 2009

ПРОТОКОЛ АТТЕСТАЦИИ
№ 16-10-09
на сейсмостойкость

Объект испытаний	Камеры сборные одностороннего обслуживания серии SM6 на номинальные напряжения 10 и 20 кВ (тип DM1-W, зав. № 0505154L; тип IM, зав. № 0523299L; тип QM, зав. № 0540245L), разработчик SCHNEIDER ELECTRIC INDUSTRIES SAS (Франция), изготовитель: Usine 38LL (адрес: ZI de la Verrerie, Le Fontanil, F-38050 GRENOBLE CEDEX 9, Франция).
Вид испытаний, документ на соответствие которому проводились испытания.	Испытания на соответствие требованиям ГОСТ 17516.1-90, ГОСТ 16962.2-90, ГОСТ 30546.1-98, ГОСТ 30546.2-98, НП 031-01, в части сейсмостойкости и требований в части стойкости к механическим воздействиям, ANSI/IEEE Std. 344-1987, МЭК 60980, R01.KK.0.0.AP.PZ.WD001.

ПРОТОКОЛ СОДЕРЖИТ:

ВЕРНО ОРИГИНАЛА

ЗАКЛЮЧЕНИЕ:

Камеры сборные одностороннего обслуживания серии SM6 на номинальные напряжения 6-20 кВ, разработчик SCHNEIDER ELECTRIC INDUSTRIES SAS (Франция); изготовители: Usine 38LL (адрес: ZI de la Verrerie, Le Fontanil, F-38050 GRENOBLE CEDEX 9, Франция); ООО «Шнейдер Электрик Эквипмент Казань» (адрес: Россия, 420107, Республика Татарстан, г. Казань); SCHNEIDER-ELECTRIC Hungaria Villamossagi Zrt. (адрес: H-8900 Zalaegerszeg, Egervari ut 9, Венгрия),

соответствуют требованиям НП-031-01, ГОСТ 17516.1-90, ГОСТ 16962.2-90, ГОСТ 30546.1-98, ГОСТ 30546.2-98, ANSI/IEEE Std.344-1987, МЭК 60980, R01.KK.0.0.AP.PZ.WD001, в части сейсмостойкости при сейсмических воздействиях интенсивностью 9 баллов (по шкале MSK-64) и могут использоваться в сейсмоактивных зонах РФ и на АЭС при высотных отметках до 30,0 м.

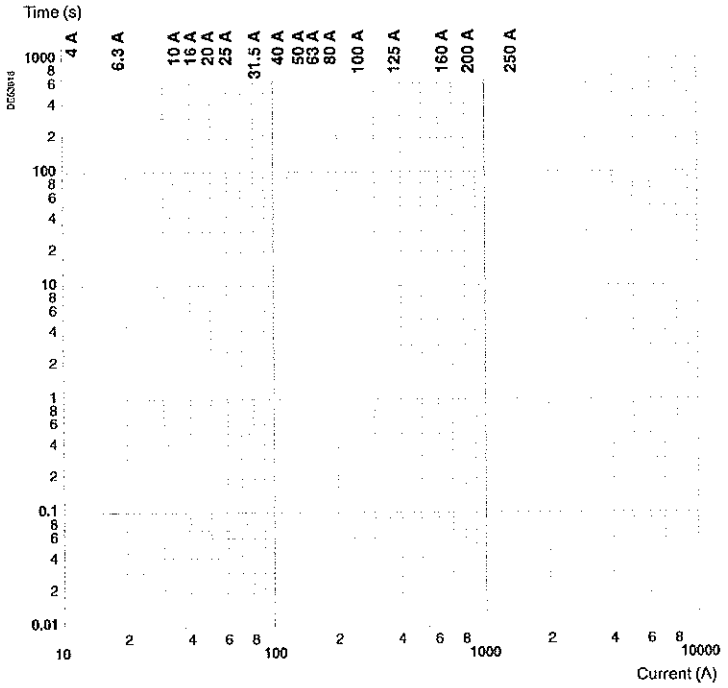
Руководитель группы, Ст. н. с. В.В. Пискарев

1470

ПРИЛОЖЕНИЕ 9

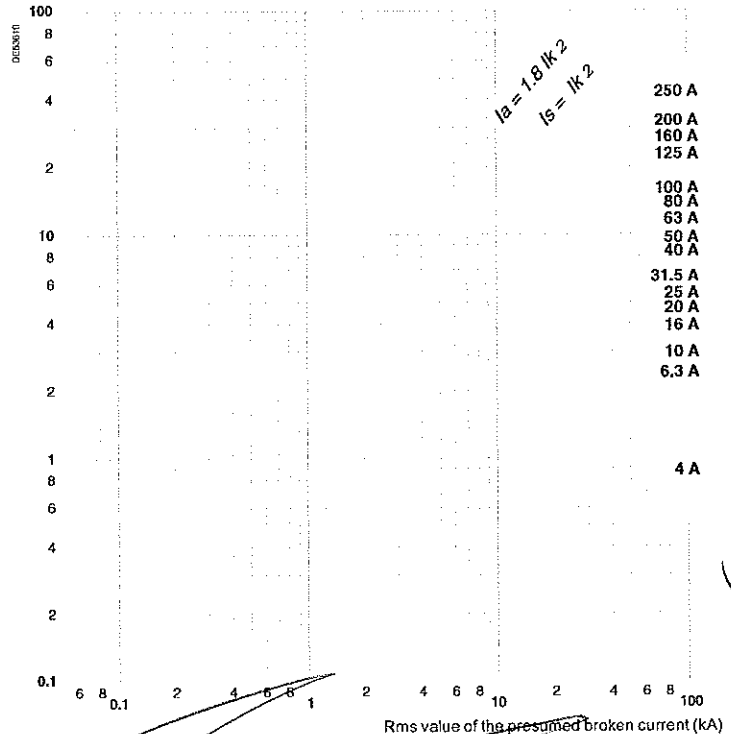
Fusarc CF fuses
Fuse and limitation curves

Fuse curve 3.6 - 7.2 - 12 - 17.5 - 24 - 36 kV



Limitation curve 3.6 - 7.2 - 12 - 17.5 - 24 - 36 kV

The diagram shows the maximum limited broken current value as a function of the rms current value which could have occured in the absence of a fuse.



ПРИЛОЖЕНИЕ 10

Protecting the environment

Product environmental profile & recycling service

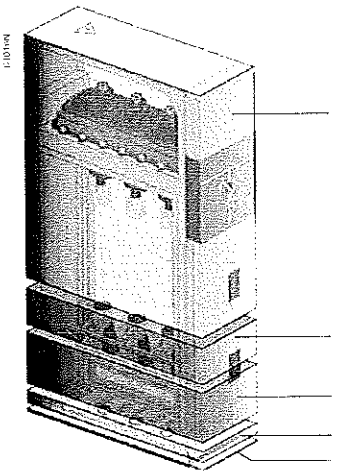
Schneider Electric's recycling service for SF6 products is part of a rigorous management process.

Schneider Electric is committed to a long term environmental approach.
As part of this, the SM6 has been designed to be environmentally friendly, notably in terms of the product's recycleability.

The materials used, both conductors and insulators, are identified in product environmental profile analysis and easily separable.
It was performed in conformity with ISO 14040 "Environmental management: life cycle assessment - principle and framework".

At the end of its life, SM6 can be processed, recycled and its materials recovered in conformity with the draft European regulations on the end-of-life of electronic and electrical products, and in particular withoutany gas being released to the atmosphere nor any polluting fluids being discharged.

SM6 is compliant with the RoHS directive.
RoHS restricts the use of six hazardous materials in the manufacture of various types of electronic and electrical equipment.



	24 kV		36 kV
	Switch unit	Circuit breaker unit	Switch unit
Ferrous metal	84%	65%	74%
Non-ferrous metal	4%	10.6%	8%
Thermohardening	9.5%	22%	15%
Thermoplastics	2.35%	2.3%	2%
Fluid	0.15%	0.1%	1%

The environmental management system adopted by Schneider Electric production sites that produce the SM6 have been assessed and judged to be in conformity with requirements in the ISO 14001 standard.

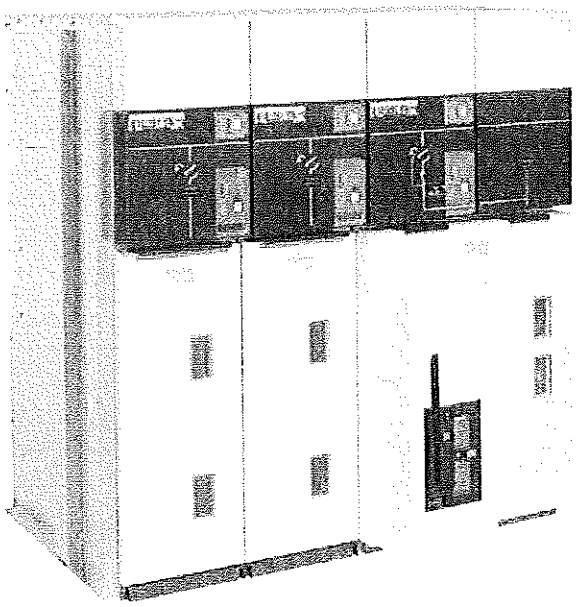
Medium Voltage Distribution

Catalogue | 2012

SM6

Modular units

Air insulated switchgear up to 36 kV



Make the most of your energy

Schneider Electric

2175

Medium Voltage Distribution
SM6
Air insulated switchgear
7.2 to 36 kV

Your requirements...

Safety

- Operating safety through protection against electrical, mechanical and thermal effects of a fault (insulation of each compartment)
- All operations carried out from the front, door closed
- Voltage Presence Indicator System located on the front panel
- Position indicator linked to the device's physical position
- Protection in the event of internal arcing
- Interlocking devices
- "Anti-reflex" handles

Reliability

- Type-tested solution which complies with the IEC62271-200 standard
- Design by the most accurate three-dimensional computer techniques
- Manufacturing & testing according to ISO 9001:2000 quality standard

Simplicity

- Easy installation - All cubicles with the same engineering dimensions
- On-site information retrieval
- Possibility of remote management
- Maintenance with power on (FSC2A), very simple
- Compartmentalization of MV parts (insulated partitions)

Reliability + Simplicity = Cost optimization!

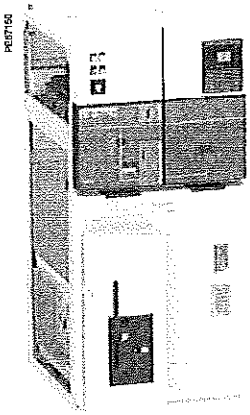
Continuity of service & Completed Safety

ВЯРНО С ОРИГИНАЛА

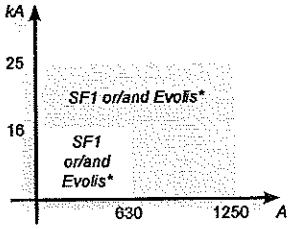
2176

Our solutions

Schneider Electric has developed protection, monitoring and control solutions specifically dedicated to Medium Voltage networks for over 40 years.
SM6 switchgear has been specifically designed on the basis of that extensive experience.
It also incorporates some very new solutions, giving the best in terms of continuity of service and operators' safety.



High performance breaking device



(*) Not available at 36 kV.

A comprehensive solution

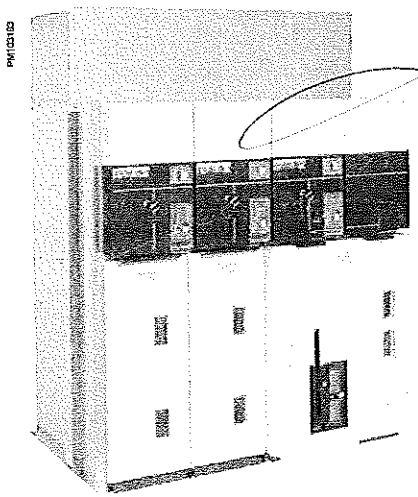
SM6 switchgear is fully compatible with
- PowerMeter metering units.
- Sepam multi-function protection relays
  - Protection
  - Measurements and diagnosis.
- VIP protection self powered relay for protection.

SM6 swithchboards can thus be easily integrated into any monitoring and control system.
- Local & remote indication and operation.

SM6, a truly professional solution! More than 1,100,000 cubicles installed world-wide.

Enhanced safety in case of internal arc

Internal Arc Classification: A-FL and A-FLR.
- 3-sides internal arc protection IAC: A-FL, 12,5 kA 1 s and 16 kA 1 s for 24 kV and 16 kA 1 s for 36 kV.
- 4-sides internal arc protection IAC: A-FLR, 16 kA 1 s and 20 kA 1 s for 24 kV.
- Choice of exhaust:
  - downwards exhaust
  - upwards exhaust for 24 kV.



ВЯРНО С ОРИГИНАЛА

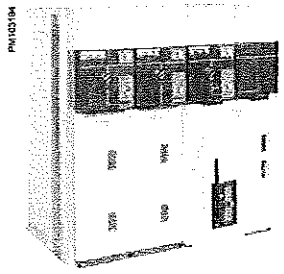
2177

General contents

2178

Contents

The experience of a world leader



The Schneider Electric experience's extends over forty years in factory-built cubicles and over thirty years in SF6 breaking technology for Medium Voltage switchgear.

This experience means that today Schneider Electric can propose a complementary range: vacuum type circuit breaker cubicles up to 24 kV and standard or enhanced internal arc withstand cubicles to reinforce the safety of people according to the IEC standard.

This gives you the advantage of unique experience, that of a world leader, with over 2,500 000 SF6 Medium Voltage units installed throughout the world.

Putting this experience at your service and remaining attentive to your requirements is the spirit of active partnership that we want to develop in offering you the SM6.

The modular SM6 is a range of harmonised cubicles equipped with SF6 or vacuum breaking technology switchgear with 30 years life span.

These cubicles allow you to produce all your Medium Voltage substation requirements up to 36 kV by superposing their various functions.The result of in-depth analysis of your requirements, both now and in the future, SM6 cubicles mean that you can take advantage of all the features of both a modern and proven technology.

1975: innovation
Sulphur hexafluoride (SF6) is first used in an MV switch for an MV/LV transformer substation, with the VM6.

1989: experience
Over 300,000 VM6 cubicles equipped networks throughout the world.

1991: innovation and experience
Cumulated with the second generation of SM6 modular SF6 cubicles.

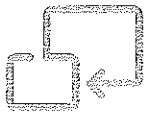
2012: a leading position
With over 1,100,000 SM6 cubicles installed around the world, Schneider Electric consolidates its position as uncontested leader in the Medium Voltage field.

The range's advantages

Upgradability

SM6, a comprehensive range

- A comprehensive offer covering your present and future requirements
- A design adapted to the extension of your installations
- A catalogue of functions for all your applications
- A product designed to be in compliance with standards constraints
- Options to anticipate the control and monitoring of your installations.



Compactness

SM6, an optimised range

- Compact units, with low increment cubicles
- Rationalised space requirement for switchboard installation
- Reduction of civil works costs
- Easy integration in factory-built outdoor substations for which the SM6 is particularly well designed.

Maintenance

SM6, a range with reduced maintenance

- The active parts (breaking and earthing) are integrated in an SF6-filled, "sealed for life" unit
- The control mechanisms, are intented to function with reduced maintenance under normal operating conditions
- Enhanced electrical endurance when breaking.

Ease of installation

SM6, a simple range to incorporate

- Reduced dimensions and weights
- Only one civil works layout
- A solution adapted to cable connection
- Simplified switchboard busbar design.

Ease and safe to operate

SM6, a proven range

- A three position switch to block incorrect switching
- The earthing disconnector has full closing capacity
- Positive breaking of position indicators
- Internal arc withstand in the cable and switchgear compartments
- Clear and animated display diagrams
- Switching lever with an "anti-reflex" function
- Compartmented cubicles.

SM6: a range designed with control and monitoring in mind

SM6 switchgear is perfectly adapted to control and monitoring applications. Motorised, either when installed or at a later date on-site without any interruption in service, SM6 combines with the Easergy T200 remote control interface. You therefore benefit from a ready-to connect unit that is easy to incorporate providing guaranteed switchgear operation.

SM6: a range with adapted protection devices

With the SM6, Schneider Electric proposes solutions for network management; the Sepam and VIP or relay ranges protect installations, providing continuity of electrical supply and reducing downtime.

Protecting the environment

Product environmental profile & recycling service

Schneider Electric's recycling service for SF6 products is part of a rigorous management process.

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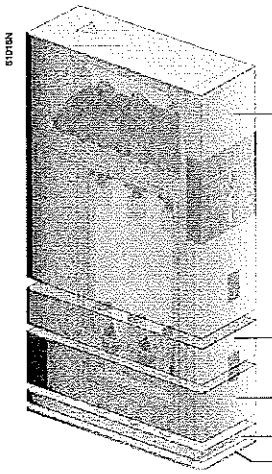

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The environmental management system adopted by Schneider Electric production sites that produce the SM6 have been assessed and judged to be in conformity with requirements in the ISO 14001 standard.

A full range of services

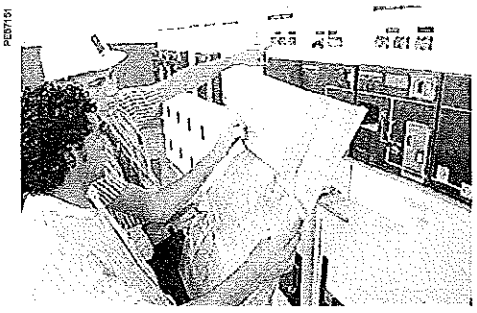
Schneider Electric is capable of offering a full range of services either associated or not with the supply of the SM6 unit.

To improve the quality of your electrical power:
- Network study, harmonics study, etc.
- Reactive energy compensation
- Consumption monitoring
- Optimisation of your electrical power supply contracts.

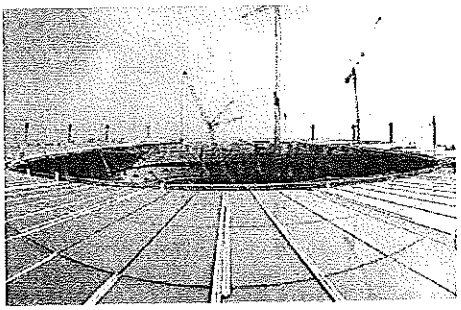
To accompany the purchase and installation of your SM6 equipment:
- Adaptation of our equipment to provide a better response to your requirements
- On site assembly, testing and commissioning of your equipment
- Customised financing solutions
- Warranty extension
- Operator training.

To accompany your installation throughout its life and upgrading your equipment:
- Upgrading your existing equipment: functional adaptation, control motorisation, renovation of protections units, etc.
- On site work
- Supply of replacement parts
- Maintenance contracts
- End of life recycling.

Fore more information on all the services proposed by Schneider Electric, please contact your Schneider Electric Sales Office.



The references of a leader
SM6, a world-wide product



Asia/Middle East
- Canal Electrical Distribution Company, Egypt
- General Motors Holden, Australia
- Pasteur Institute, Cambodia
- Tian he City, China
- Sanya Airport, China
- Bank of China, Beijing, Jv Yanta, China
- Plaza Hotel, Jakarta, Indonesia
- Bali Airport, Indonesia
- Wakasa Control Center, Japan
- Otaru Shopping center, Japan
- New City of Muang, Thong Than, Kanjanapas, Thailand
- Danang and Quinhon Airport, Vanad, Vietnam
- British Embassy, Oman
- KBF Palace Riyadh, Saudi Arabia
- Raka Stadium, Saudi Arabia
- Bilkent University, Turkey
- TADCO, BABOIL development, United Arab Emirates
- Melbourne Tunnel City Link, Australia
- Campus KSU Qassim Riyad, Saudi Arabia

Africa
- ONAFEX, Hilton Hotel, Algeria
- Yaounde University, Cameroon
- Karoua Airport, Cameroon
- Libreville Airport, Gabon
- Ivarto Hospital, CORIF, Madagascar
- Central Bank of Abuja, ADEFEMI, Nigeria
- OCI Dakar, Oger international, CGE, Senegal
- Bamburi cement Ltd, Kenya
- Ivory Electricity Company, Ivory Coast
- Exxon, New Headquarters, Angola

South America/Pacific
- Lamentin Airport, CCIM, Martinique
- Space Centre, Kourou, Guyana
- Mexico City Underground System, Mexico
- Santiago Underground System, Chile
- Cohiba Hotel, Havana, Cuba
- Iberostar Hotel, Bavaro, Dominican Republic
- Aluminio Argentino Saic SA, Argentina
- Michelin Campo Grande, Rio de Janeiro, Brazil
- TIM Data Center, São Paulo, Brazil
- Light Rio de Janeiro, Brazil
- Hospital Oswaldo Cruz, São Paulo, Brazil

Europe
- Stade de France, Paris, France
- EDF, France
- Eurotunnel, France
- Nestlé company headquarters, France
- TLM Terminal , Folkestone, Great Britain
- Zaventem Airport, Belgium
- Krediebank Computer Centre, Belgium
- Bucarest Pumping station, Romania
- Prague Airport, Czech Republic
- Philipp Morris St Petersburg, Russia
- Kremlin Moscow, Russia
- Madrid airport, Spain
- Dacia Renault, Romania
- Lafarge cement Cirkovic, Czech Republic
- Caterpillar St Petersburg, Russia
- Ikea Kazan, Russia
- Barajas airport, Spain
- Coca-cola Zurich, Switzerland

Quality assurance
Quality certified to ISO 9001

A major advantage

Schneider Electric has integrated a functional organisation into each of its units. The main mission of this organisation is to check the quality and the compliance with standards.
This procedure is:

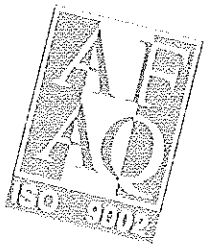
- Uniform throughout all departments
- Recognised by many customers and approved organisations.

But it is above all its strict application that has enabled recognition to be obtained by an independent organisation:
The French Quality Assurance Association (FQAA).

The quality system for the design and manufacture of SM6 units has been certified in conformity with the requirements of the ISO 9001: 2000 quality assurance model.

MT55054

MT55055



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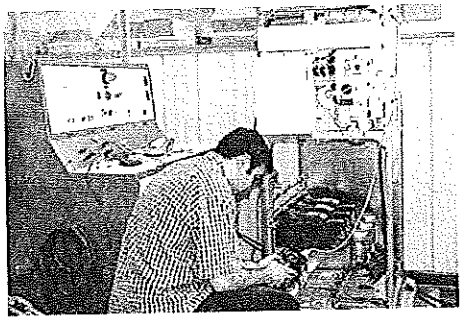


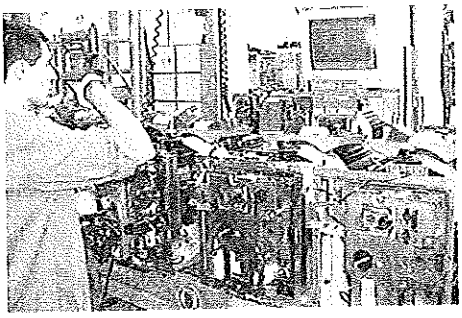
Meticulous and systematic controls

During manufacture, each SM6 is subject to systematic routine testing which aims to check the quality and conformity:

- Sealing testing
- Filling pressure testing
- Opening and closing rate testing
- Switching torque measurement
- Dielectric testing
- Conformity with drawings and plans.

The results obtained are written and reported on the test certificate for each device by the quality control department.

01002N

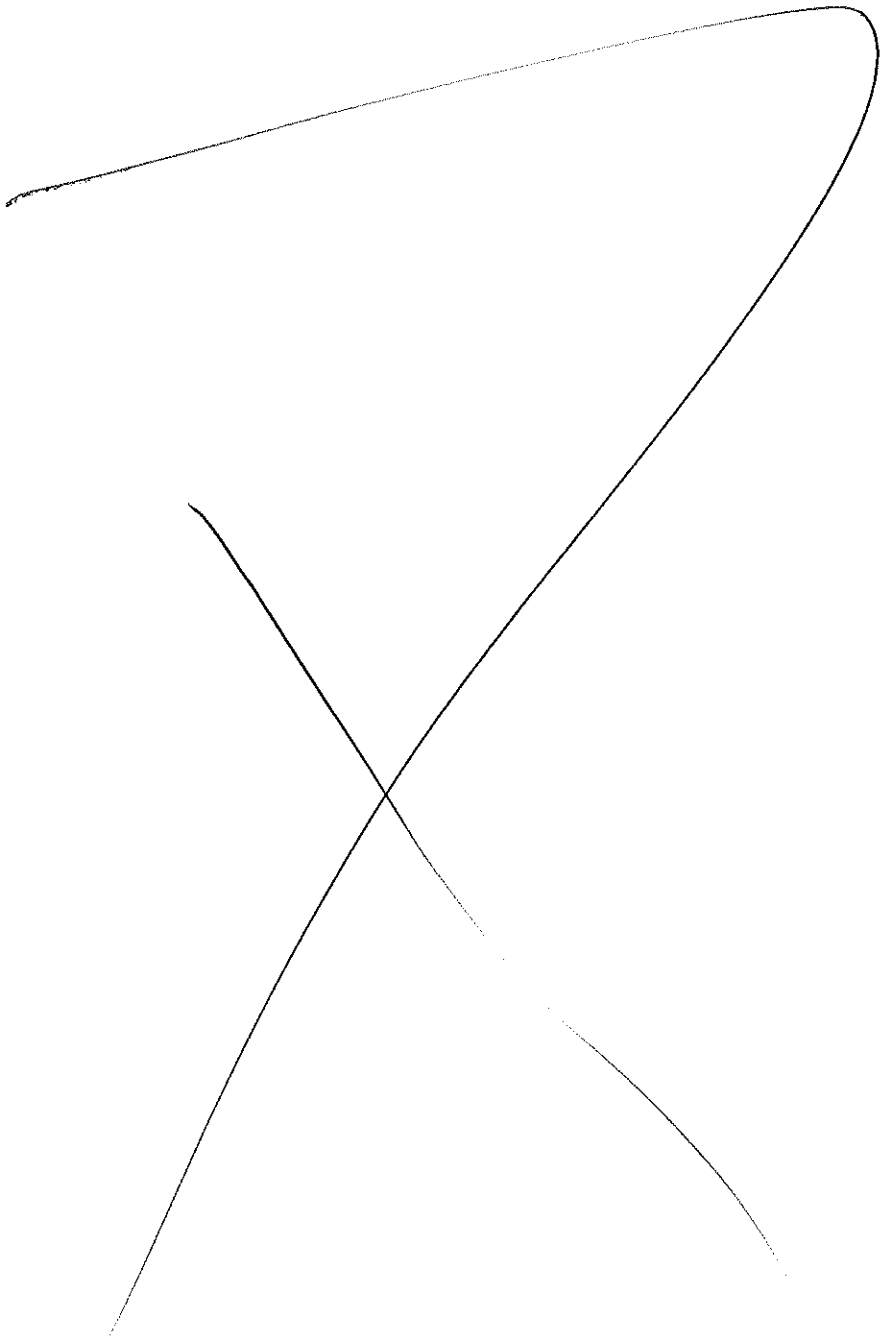


Mean Operating Time To Failure (MTTF)

As result of Schneider Electric quality assurance system, SM6 has negligible "Mean Down Time (MDT)" in comparison to the "Mean Up Time (MUT)", thus "Mean Operating Time Between Failures (MTBF)" is as similar as to the MTTF.

- MTTF (cumulative) = 3890 years for 24 kV *
- MTTF (cumulative) = 6259 years for 36 kV *.

(*) Year 2010.



Contents

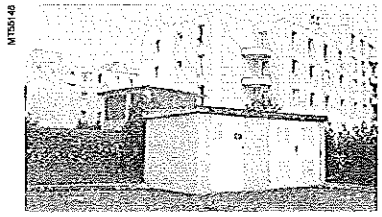
Field of application

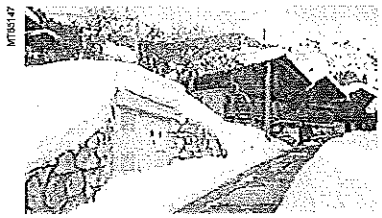
The SM6 is made up of modular units containing fixed, disconnectable or withdrawable metal-enclosed switchgear, using sulphur hexafluoride (SF6) or vacuum:

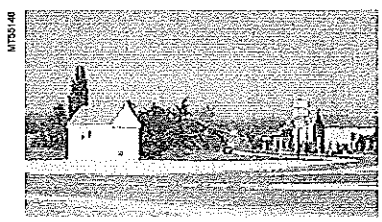
- Switch-disconnector
- SF1, SFset or Evolis circuit breaker
- Rollarc 400 or 400 D contactor, or vacuum contactor
- Disconnector.

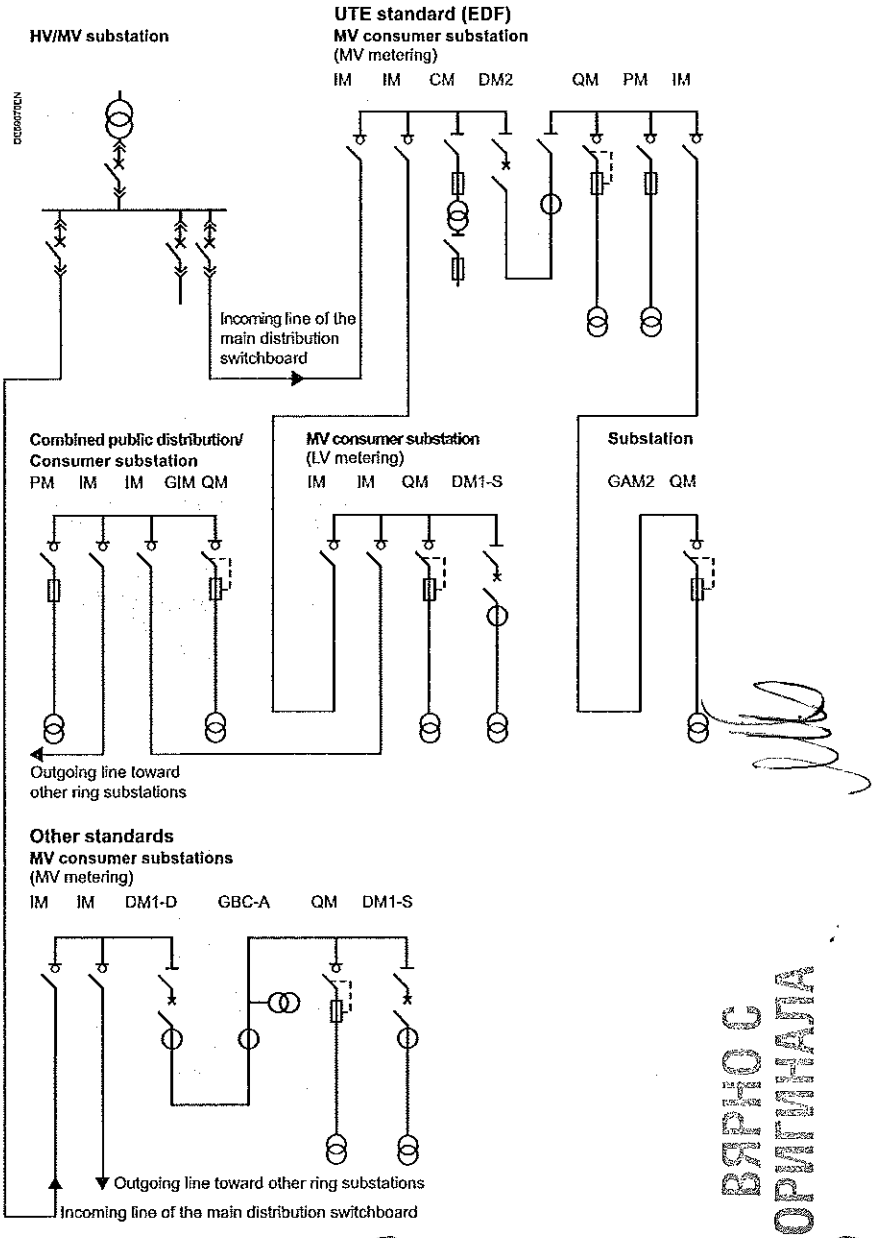
SM6 units are used for the MV section in MV/LV transformer substations in public distribution systems and MV consumer or distribution substations up to 36 kV.

MV/LV transformer substations

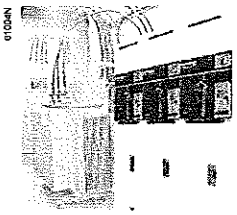




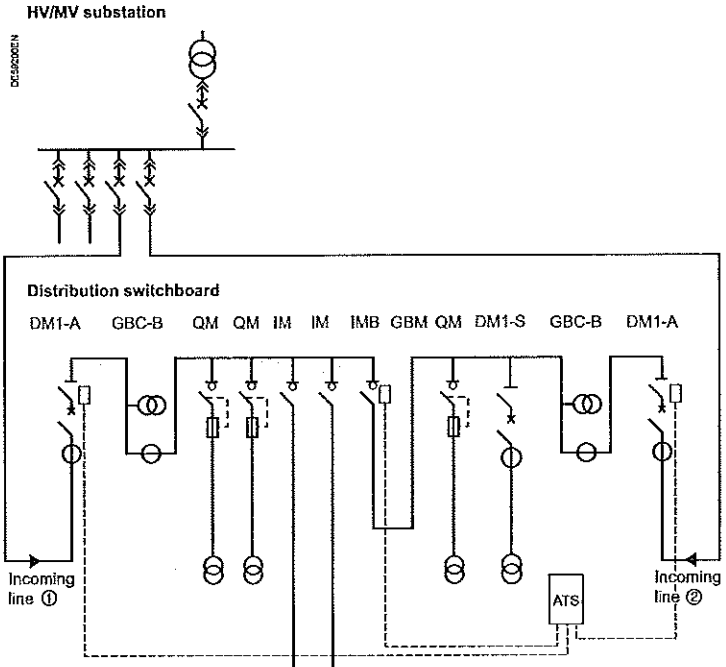


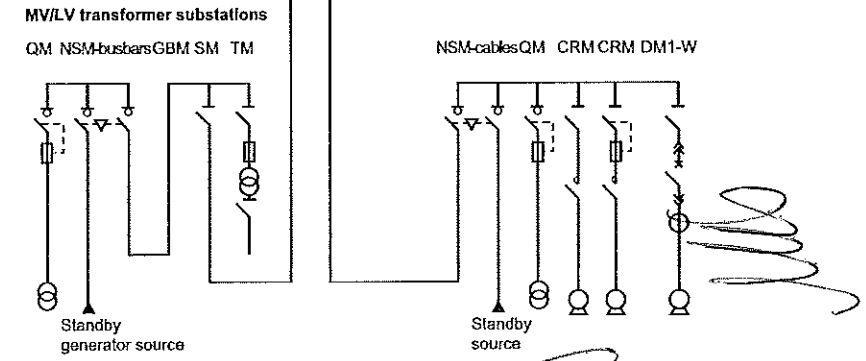


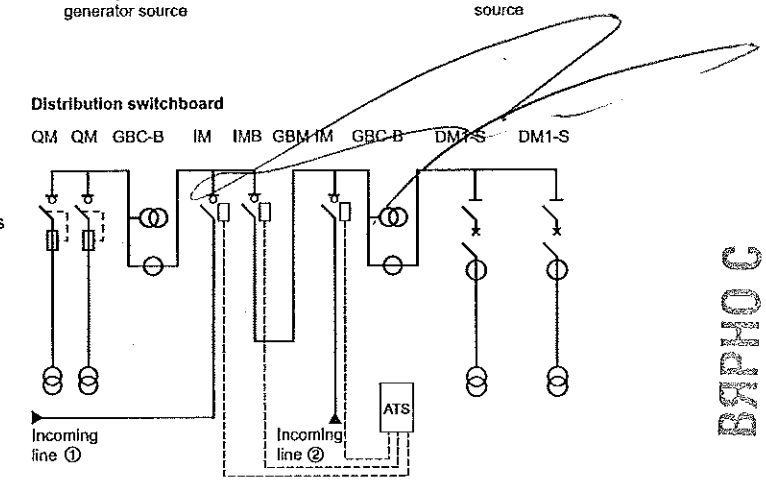
Field of application



Industrial distribution substations







ATS: Automatic Transfer System

Unit definitions

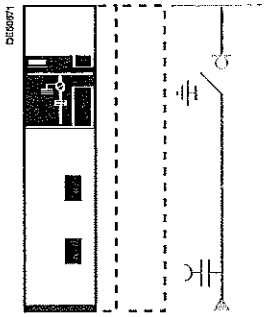
Below is the list of SM6 units used in MV/LV transformer substations and industrial distribution substations:

- **IM, IMC, IMB** switch
- **PM** fused switch
- **QM, QMC, QMB** fuse-switch combination
- **CRM, CVM** contactor and contactor with fuses
- **DM1-A, DM1-D, DM1-S** single-isolation disconnectable SF6 type circuit breaker
- **DMV-A, DMV-D, DMV-S** single-isolation vacuum type circuit breaker frontal
- **DMVL-A, DMVL-D** single-isolation disconnectable vacuum type circuit breaker lateral
- **DM1-W, DM1-Z** withdrawable single-isolation SF6 type circuit breaker
- **DM2** double-isolation disconnectable SF6 type circuit breaker
- **DM2-W** withdrawable double-isolation SF6 type circuit breaker only for 36 kV
- **CM, CM2** voltage transformers
- **GBC-A, GBC-B** current and/or voltage measurements
- **NSM-cables** for main incoming and standby
- **NSM-busbars** for main incoming and cables for standby
- **GIM** intermediate bus unit
- **GEM** extension unit
- **GBM** connection unit
- **GAM2, GAM** incoming cable connection unit
- **SM** disconnector
- **TM** MV/LV transformer unit for auxiliaries
- Other units, consult us
- Special function **EMB** busbar earthing only for 24 kV.

Units for switching function

Switching

page



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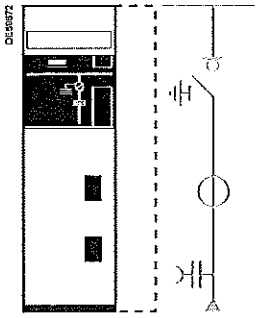
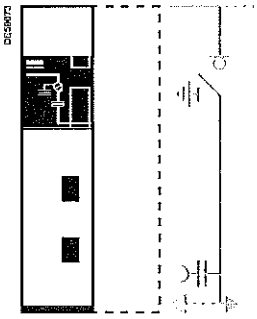
IM
Switch unit
24 kV: 375 or 500 mm
36 kV: 750 mm

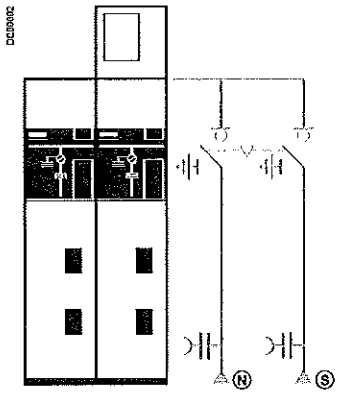


IMC
Switch unit
24 kV: 500 mm
36 kV: 750 mm



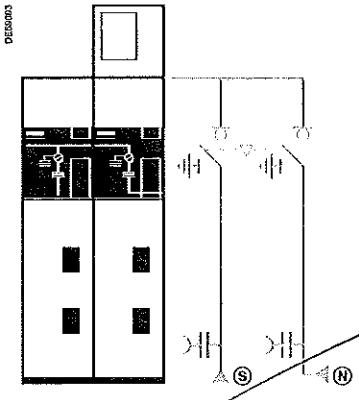
IMB
Switch unit
with earthing disconnector
right or left outgoing line
24 kV: 375 mm
36 kV: 750 mm

Automatic transfer system

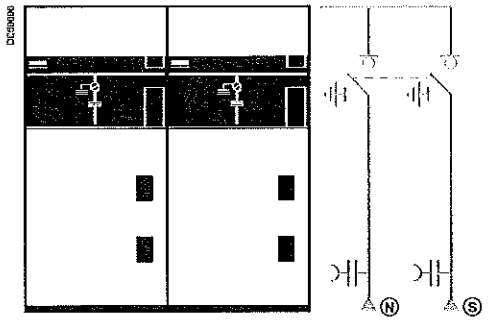


49

NSM-cables
Cables power supply
for main incoming line
and standby line
24 kV: 750 mm

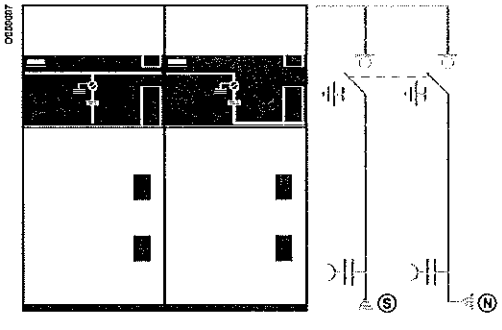


NSM-busbars
Busbars power supply
for main incoming line on right or left
and cables for standby line
24 kV: 750 mm



50

NSM-cables
Cables power supply
for main incoming line
and standby line
36 kV: 1500 mm



NSM-busbars
Busbars power supply
for main incoming line on right or left
and cables for standby line
36 kV: 1500 mm

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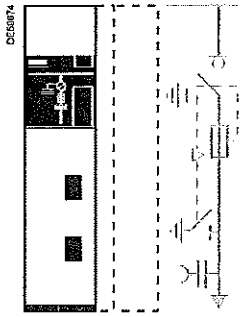
Units for protection function

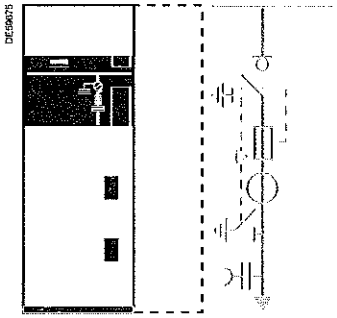
Fuse-switch

page

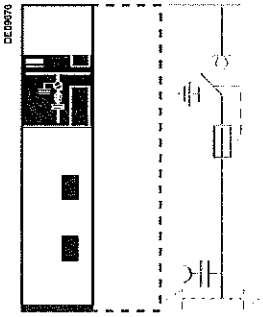


51

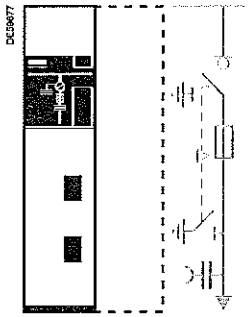
QM
Fuse-switch combination unit
24 kV: 375 or 500 mm
36 kV: 750 mm



QMC
Fuse-switch combination unit
24 kV: 625 mm
36 kV: 1000 mm



QMB
Fuse-switch combination unit
right or left outgoing line
24 kV: 375 mm
36 kV: 750 mm



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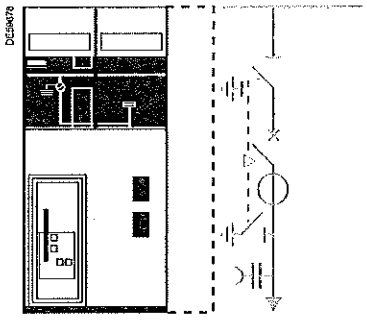
PM
Fuse-switch unit
24 kV: 375 mm
36 kV: 750 mm

SF6 circuit-breaker



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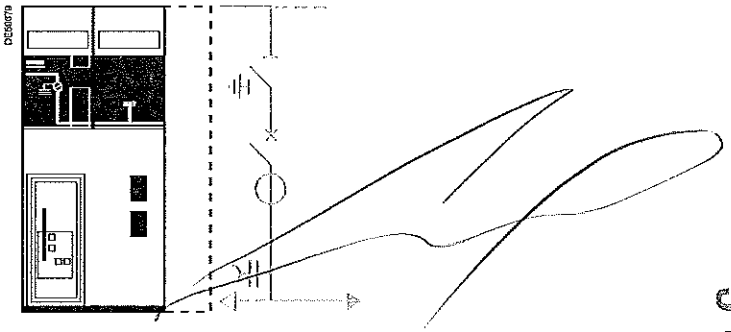
DM1-A
Single-isolation, disconnectable
circuit breaker unit
24 kV: 750 mm
36 kV: 1000 mm



DM1-D
Single-isolation, disconnectable
circuit breaker unit
right or left outgoing line
24 kV: 750 mm
36 kV: 1000 mm