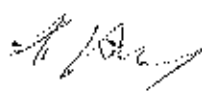


ПРИЛОЖЕНИЕ №1



SIEMENS
NXPLUS C

ТЕХНИЧЕСКО
ОПИСАНИЕ



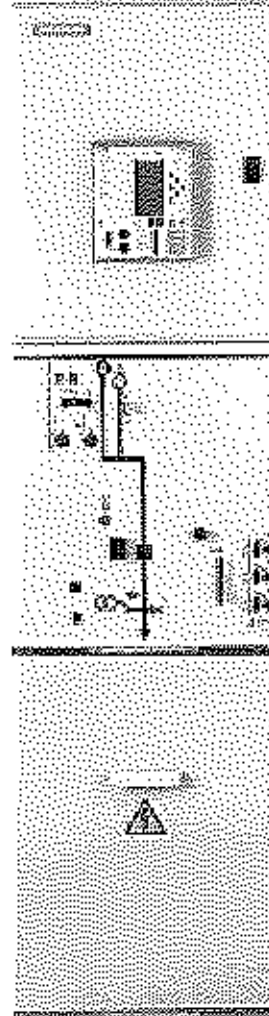
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Reference: 17363

Offer for NXPLUS C
Medium voltage switchgear
NXPLUS_C-56649

NXPLUS C

**SF₆-Insulated, Metal-Enclosed
Medium-Voltage Switchgear**



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Technical Description

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1 Switchgear Description



1.1 General

The switchgear NXPLUS C is a maintenance-free, factory-assembled and type-tested medium-voltage switchgear.

It is three-pole metal-enclosed and SF₆-insulated.

Vacuum circuit-breaker, switch-disconnector, disconnector and vacuum contactor panels are available. All panel types up to 1250 A have the same dimensions.

The core of the switchgear consists of hermetically welded containers made of corrosion-resistant stainless steel, accommodating the primary devices (circuit-breaker and three-position switch).

The switchgear is sealed for life. The individual panels are interconnected by solid-insulated busbars outside the gas compartments.

Gas work is not required, neither for installation at site nor for extension of the switchgear.

The operating mechanisms of the vacuum circuit-breaker, three-position switch-disconnector, three-position disconnector and vacuum contactor are located outside the gas compartment and are therefore accessible at any time. The operating mechanisms are maintenance-free.

Current and voltage transformers are located outside the gas compartment.

Cables are connected from the front. They are arranged at one level side-by-side and at a user-friendly mounting height.

1.2 Panel Design

A switchpanel consists of the following functional components:

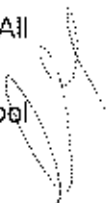
- Busbar compartment with 1-pole insulated, plugged-in and bolted busbars
- Switchgear vessel with vacuum circuit-breaker, vacuum contactor, three-position disconnector and/or three-position switch-disconnector
- Cable compartment
- Low-voltage compartment
- Panel enclosure

The switchgear vessel made of stainless steel is laser-welded and meets the requirements of a sealed pressure system.

Panels are interconnected by the plug-in busbars.

Cables are connected through enclosed cable plugs of the outside-cone system. All functional components of the primary part mentioned above are safe-to-touch.

Pressure is relieved to the top through a rear duct. This duct contains absorbers to cool down the hot gases in case of an arc fault.



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The internal arc classification is specified according to IEC 62271-200. NXPLUS C switchgear is provided for wall-standing arrangement.

The degree of protection is IP65 for live parts of the primary circuit, and IP3XD for the switchgear enclosure.

The switchgear enclosure is powder-coated with highly resistant epoxy resin in the color:

The mimic diagram at the switchgear front is designed with the following color combinations:

- "Light-basic"
Earthing symbol and earthing path: "red" color,
other symbols: "black" color



1.3 Switchgear Vessel

The switchgear vessel made of hermetically welded stainless steel accommodates the active, live parts of the switchgear:

- Vacuum interrupters
- Three-position switch
- Panel bars
- Bushings with capacitive layers
- Voltage transformer disconnecting facility with bushings

The rated pressure of the SF₆ gas in the vessel is 1500 hPa (absolute).

Gas density is monitored with temperature compensation. When too low, gas density is transmitted to the outside without contacts.

Due to the welding technology and the special mechanical bushings, gaskets are not necessary at all. This guarantees operation without gas checks or refilling.

1.4 Switching Devices

1.4.1 Circuit-Breaker

The vacuum interrupters are operated linearly from the outside mechanism, without kinematic deflections inside the enclosure. They are operated by the outside mechanism without seals through hermetically sealed metal bellows which are welded into the module partition.

The circuit-breakers used in NXPLUS C belong to the well-known product range 3AH. The maintenance-free operating mechanism has the following equipment features:

- Motor operating, stored-energy spring mechanism, with auto-reclosing capacity
- "Trip-free" according to IEC
- Auxiliary switch contacts for control and signaling
- Operation counter



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- Circuit-breaker tripping signal
- Varistor circuit
- Closing solenoid
- Tripping mechanisms equipped according to typical
- "Spring charged" indication
- Mechanical position indicator
- Mechanical ON pushbutton
- Mechanical OFF pushbutton
- Feeder locking device with interlocking to three-position disconnecter



In all circuit-breaker panels, the feeder is make-proof earthed by closing the circuit-breaker additionally.

Endurance class of circuit-breaker:

Function	Class	Standard	Property of NXPLUS C
BREAKING	M2	IEC 62271-100	10,000 x mechanically without maintenance
	E2	IEC 62271-100	10,000 x rated normal current without maintenance 50 x rated short-circuit breaking current without maintenance
	C2	IEC 62271-100	Very low probability of restrikes

1.5 Three-Position Switch

1.5.1 General

The disconnecting and earthing functions are combined in one switching device. This reduces the functional parts and makes interlocks between these two functions unnecessary.

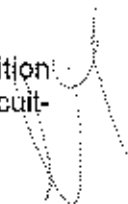
The primary part is welded into the switchgear vessel.

The operating mechanism is located outside the switchgear vessel. There are separate operating shafts available for the two functions.

1.5.2 Three-Position Disconnecter

In circuit-breaker, disconnecter and bus sectionalizer panels, the three-position disconnecter fulfils the functions DISCONNECTING and, in combination with the circuit-breaker, make-proof EARTHING.

Endurance class of three-position disconnecter:



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Function	Class	Standard	Property of NXPLUS C
DISCONNECTING	M1	IEC 62271-102	2,000 x mechanically without maintenance
READY-TO-EARTH	M0	IEC 62271-102	1,000 x mechanically without maintenance
	E0	IEC 62271-102	no making capacity
EARTHING	E2 ¹⁾	IEC 62271-200	50 x rated short-circuit current making without maintenance
		IEC 62271-102	

¹⁾ The EARTHING function with endurance class E2 is reached by closing the circuit-breaker in combination with the three-position disconnecter (endurance class E0)

The operating mechanism of the three-position disconnecter has the following equipment features:

- Manual operating mechanism for DISCONNECTING and EARTHING
- Auxiliary switch contacts, disconnecter: 3 NO, 3 NC for free use
- Auxiliary switch contacts, earthing switch: 3 NO, 3 NC for free use
- Mechanical position indicators for disconnecter and earthing switch positions
- Manual operation with mechanical interlock to circuit-breaker
- Locking device

1.6 Interlocks

In single-busbar switchgear, the circuit-breakers and three-position disconnecters are mechanically interlocked between each other.

Interlocking conditions:

- Operation of the three-position switch cannot be selected as long as the circuit-breaker is closed.
- When "operation of three-position switch" is selected, the circuit-breaker is blocked against closing.
- The selection "disconnecter function" or "earthing switch function" releases the operating shaft of the associated switching operation only.
- The operating lever cannot be removed until the switching operation has been completed.
- The circuit-breaker cannot be operated until the operating lever of the three-position switch has been removed and the control gate is moved to the centre position.

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- Feeder earthing (three-position switch to EARTHED and circuit-breaker CLOSED) is secured against "de-earthing" (by a padlock).
- Electrical connections to releases are interrupted when the three-position switch is switched to EARTHED.
- The feeder locking device prevents the circuit-breaker from being switched off mechanically at the panel.
- The feeder locking device can only be locked if the feeder is earthed.
- Feeder locking device with signaling switch.



1.7 Cable Connection

The cable compartment is only accessible from the front using tools.

The three phases are arranged side-by-side at the same height. The connection height is 702 mm. In circuit-breaker and disconnector panels with a panel width of 900 mm, the connection height is 577 mm. In a switch-disconnector or vacuum contactor panel (with HV HRC fuses) the connection height is 450mm.

In the different panel versions it is possible to connect up to three (up to 1000 A), up to four (1250 A), and up to eight (from 2000 A) cables per phase with safe-to-touch T-plugs according to the outside-cone system (DIN EN 50181, interface type C). Symmetrical current distribution must be ensured.

The following suppliers are approved:

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Company	Type of T-plug
Nexans Euromold	400TB/G, K400TB/G 440TB/G, K440TB/G 430TB/G, K430TB/G 484TB/G, K484TB/G 489TB/G, K489TB/G
Südkabel	SET 12, SET 24 SEHDT 13, SEHDT 23
nkt cables	CB 12-630, CB 17,5-630, CB 24-630 CB 36-630(1250) CB 24-1250-2 CB 42-1250-3
Tyco Electronics Raychem	RSTI-58xx RSTI -395x, RSTI-595x RSTI-L56xx RSTI-36Lxx, RSTI-56Lxx
3M	93-EE 705-6 93-EE 715-6
GCA	CJB10-630 CJB20-630
ABB Kabeldon	CSE-A 12630-xx CSE-A 24630-xx
Cellpack	CTS 630A 24kV
Ample	AQT3-15/630 AQT3-24/630

In 1250 A panels with a normal current from 1150 A, cable sealing ends with tin-plated, nickel-plated or silver-plated cable lugs have to be used (observe the associated specifications of the T-plug supplier).

Using suitable T-plugs, cable testing can be performed directly at the cable termination. A separate test socket can therefore be omitted.

1.8 Instrument Transformers

1.8.1 Current Transformers

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Current transformers are designed as ring-core transformers. They are fitted outside the vessels at earth potential, i.e. without dielectric stress.

In the cable connection area, the current transformers are fitted around the bushings in front of the cable terminations.

Ratio, rating and accuracy can be adjusted to the respective requirements.

1.8.2 Voltage Transformers

Voltage transformers are designed as inductive transformers. They are of the plug-in type and fitted outside the gas compartment.

- Feeder voltage transformers:

Feeder voltage transformers (metal-coated) are connected to their particular sockets underneath the vessel. For voltage tests to be performed on the switchgear or the cables there is a disconnecting facility provided in the gas compartment in front of the bushings. This disconnecting facility is operated from the cable compartment. During the test, the primary connection of the voltage transformer is earthed.

1.9 Busbar

The busbar is located outside the SF₆ compartment in a metal enclosure. It is plugged onto the switchgear vessels from above and screwed tight.

The busbar itself is made of round-bar copper, the length of which depends on the panel width. It is insulated with silicone rubber, which is coated with a conductive layer on the outside and earthed. The bolted joints are insulated with cross adapters, also made of silicone rubber. These cross adapters are coated with a conductive layer both inside and outside. Therefore, no field distortion can appear at the bolted high-voltage joints.

Due to the earthed coating of the busbar system, the arrangement is independent of environmental influences such as condensation and pollution.

1.10 Switchgear Enclosure

The internal arc classified switchgear enclosure consists of the following assemblies:

- Three-part panel front
- Pressure-resistant partitions between the panels for the cable compartment
- Rear wall with pressure relief duct and integrated absorbers
- Busbar cover with absorbers
- Switchgear termination consisting of end walls with draw-out tool drawer

1.11 Operation

Switchgear operation takes place mechanically via control elements at the panel front.

Switchgear operation is also possible through a suitable bay controller (option) mounted on the panel front. Electrical operation takes place through the foil keyboard of this device. An

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LCD with mimic diagram of the feeder shows the switch position. More information can be called through this display.

1.12 Earthing

1.12.1 Feeder earthing

- Circuit-breaker panels

Feeders are make-proof earthed by switching in two steps:

1. Switch the three-position disconnecter to the READY-TO-EARTH position.
2. Close the associated circuit-breaker.

1.12.2 Busbar earthing

Busbar earthing is not provided.

1.13 Capacitive Voltage Detecting System

Capacitive layers are integrated in the bushings.

Capacitive voltage detection is performed with an LRM socket module (LRM = low resistance modified). In this LRM socket module, customary voltage indicators can be plugged in to verify safe isolation from supply phase by phase.

Furthermore, the panels can optionally be equipped with the capacitive voltage detecting systems VOIS+, VOIS R+, CAPDIS Sx+, WEGA 1.2 or WEGA 2.2, integrated in the panel front.

The voltage detecting system VOIS+ offers the following properties and functions:

- Maintenance-free
- Without auxiliary power
- Integrated indication via display
- With integrated 3-phase test socket for phase comparison (also suitable for plug-in voltage indicator)

The voltage detecting system VOIS R+ offers the following properties and functions:

- Maintenance-free
- With auxiliary power
- Integrated indication via display
- With integrated 3-phase test socket for phase comparison (also suitable for plug-in voltage indicator)
- Relay output with potential-free contact for signaling purposes and interlocks

The voltage detecting system CAPDIS S1+, WEGA 1.2 offers the following properties and functions:

- Maintenance-free
- Without auxiliary power

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- Integrated indication via display
- Integrated repeat test of the interfaces as well as integrated function test via test button
- With integrated 3-phase test socket for phase comparison (also suitable for plug-in voltage indicator)

The voltage detecting system CAPDIS S2+, WEGA 2.2 offers the following properties and functions:

- Maintenance-free
- With auxiliary power
- Integrated indication via display
- Integrated repeat test of the interfaces as well as integrated function test via test button
- With integrated 3-phase test socket for phase comparison (also suitable for plug-in voltage indicator)
- Voltage indication phase by phase or active indication of safe insulation from supply (active zero indication)
- Relay outputs with potential-free contacts for signaling purposes and interlocks
- With ready-for-service monitoring

The following description of the typical explains which of the 6 voltage detecting systems is applied in each panel version.

1.14 Low-Voltage Compartment

Low-voltage compartments are located at the front and are removable. The secondary devices (associated protection, measuring and control devices) are mounted in the low-voltage compartment on a rear mounting plate or a top-hat rail system. Single devices can be integrated in the door of the low-voltage compartment.

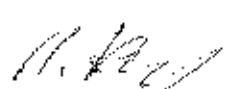
The electrical connections to the primary part and from panel to panel are made via flexible wire harnesses with 10-pole plug connectors.

General bus wires are laid in a separate connection duct located at the top.

Internal panel wires are laid in metal-clad wiring ducts. These are located on the left and right side in the front part of the switchgear enclosure and are accessible from the cable compartment resp. the low-voltage compartment. The right-side wiring duct accommodates the internal panel wiring. Customer-specific control cables can be routed to the low-voltage compartment through the left-side wiring duct. External control cables are inserted from below on the left side of the panel through a cutout in the panel base.

Rating plate of the panel, fixed on the inside of the LV door, in the following language:

- English



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2 Special Switchgear Features



2.1 Operational Reliability

Consistent hermetically welded enclosure of all live parts from the busbar down to the cable excludes any external influence on the primary part.

In addition, the welded stainless-steel enclosures make any loss of SF₆ gas impossible.

Components proven for many years, such as welded-in bushings, welded-in bellows and the Siemens vacuum switching technology, are integrated in this innovative global concept.

2.2 Personal Safety

The internal enclosure of components, the internal arc resistant design and the complete interlocking concept all guarantee a maximum degree of personal safety.

2.3 Climatic and Environmental Independence

Hermetically welded stainless-steel enclosures make the NXPLUS C insensitive to any environmental influences. The primary part is therefore consistently protected against external influences such as humidity, pollution, dust, aggressive gas, small animals, etc.

Any ingress of pollution resp. humidity through seals is excluded by this design.

The a.m. reasons make the offered switchgear also suitable for application in extreme climates or under aggressive environmental conditions.

NXPLUS C meets the requirements of "design class 2" according to IEC Report 932.

Furthermore, the dielectric strength of NXPLUS C is independent of the site altitude.

2.4 Compactness

SF₆ insulation enables very compact dimensions, as well as high switchgear performance. This provides an economical utilization of surface and space, especially in cities and conurbations, both for existing constructions and for new buildings.

2.5 Maintenance-Free Design

NXPLUS C switchgear is maintenance-free for life due to the following features:

- No repair and maintenance cycles required
- Hermetically welded stainless-steel enclosure, with maintenance-free vacuum switching technology and maintenance-free three-position switches
- Maintenance-free operating mechanisms for circuit-breakers and three-position switches
- Consistent implementation of full switchgear insulation down to the panel connection by means of cable plug-in systems

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- No need to check the gas quantity and quality due to the welded stainless-steel enclosures



2.6 Ergonomic Design

The switchgear stands out for a user-friendly and functional industrial design. All switching devices are operated from the switchgear front. Control elements and indicators are located at an ergonomic height and are optimally integrated in the overall design.

2.7 Installation Friendliness

Switchgear installation and extension as well as panel replacement is done without SF₆ gas work.

The switchgear can be installed without special tools and instruments.

Busbar interconnection from panel to panel is made through plugged-in and bolted busbar units.

For more information regarding installation and operation, please refer to our operating and installation instructions.



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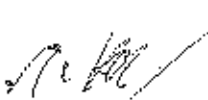
3 Standards

	IEC-Standard EN-Standard	Title
Switchgear	62 271-1	High-voltage switchgear and controlgear – Part 1: Common specifications
	62 271-200	A.C. metal- enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV
Switching devices	Circuit-breakers 62 271-100	High-voltage alternating-current circuit-breakers
	Vacuum contactors 60 470	High-voltage alternating current contactors and contactor-based motor starters
	Disconnectors and earthing switches 62 271-102	High-voltage alternating current disconnectors and earthing switches
	Switch-disconnectors 60 265-1	High-voltage switches for rated voltages above 1 kV and less than 52 kV
Switch-disconnector/fuse combinations 62 271-105	High-voltage switchgear and controlgear alternating current switch-fuse combinations	
Voltage detecting systems	62 243-5	Voltage detecting systems (VDS)
HV HRC fuses	60 282	High-voltage fuses – Current-limiting fuses
	60 787	A.c. switchgear and controlgear for voltages above 1 kV – Application guide for the selection of fuse-links of high-voltage fuses for transformer circuits
Surge arresters Surge limiters	60 098	Surge arresters
Degree of protection	60 528	Degrees of protection by enclosures (IP Code)
	60 262	Degrees of protection by enclosures (IK Code)
Insulation	60 071	Insulation co-ordination

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Instrument transformers	61 869-1	Instrument transformers
	61 869-2	Current transformers
	61 869-3	Voltage transformers
SF ₆	60 370	Specification for new SF ₆
Installation	61 936-1	Power installations exceeding 1 kV
Environmental conditions	60 721-3-3	Classification of environmental conditions
Operation	EN 50 110	Operation of electrical installations



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4 Technical Data

Voltages

Rated voltage	24.0 kV
Operating voltage	20.0 kV
Rated short-duration power-frequency withstand voltage	50 kV, 1 min
Rated lightning impulse withstand voltage	125 kV
Rated frequency	50 Hz

Short-circuit ratings

Rated short-time withstand current	25.0 kA
Rated peak withstand current	63 kA
Rated duration of short-circuit	3 s
Rated short-circuit making current (max.)	63 kA
Rated short-circuit breaking current	25.0 kA

Current ratings

Rated normal current of the busbar	1250 A
Max. permissible busbar current at 35 °C:	1300 A

Supply voltages

Rated supply voltage for motor of circuit-breaker operating mechanism	AC 230 V
Rated supply voltage for motor of three-position switch	AC 230 V
Rated supply voltage for electromagnetic interlocks	AC 230 V
Rated supply voltage for control and protection	AC 230 V
Rated supply voltage for contactor	AC 230 V
Rated supply voltage for closing solenoid	AC 230 V
Rated supply voltage for 1st shunt release	AC 230 V
Rated supply voltage for 2nd release	AC 230 V

For different rated supply voltages, see descriptions of typicals

General switchgear data

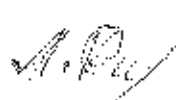
Type of arrangement	Wall-standing arrangement
Degree of protection for enclosure, operating side and lateral surfaces	IP3XD
Degree of protection, primary part	IP65
Partition class	PM
Loss of service continuity	
- for panels without HV HRC fuses	LSC 2
- for panels with HV HRC fuses	LSC 2
Internal arc classification	IAC A FL 25 kA 1s
Height of low-voltage compartment	761 mm
Panel width 630 A, 1000 A, 1250 A	600 mm
Panel width 2000 A, 2500 A	900 mm

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Panel depth1100 mm, 1225 mm
Panel height with low-voltage compartment 761 mm2250 mm, 2550 mm
Height of switchgear room (min.) 2800 mm
Width of control aisle (min.) 800 mm
recommended for panel replacement (min.)1400 mm, 1600 mm
Depth of cable basement or cable trench (min.)..... according to cable bending radius



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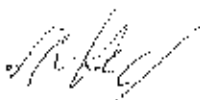
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5 Scope of Supply

The switchgear is of single-busbar design in wall-standing arrangement according to the enclosed single-line diagram.

Item No.	Quantity	Typical No.	Description
5.1	2	=JZ01	Circuit-breaker panel 1250 A- Въвод
5.2	6	=JZ02	Circuit-breaker panel 1000 A- Извод
5.3	1	=JZ00	Switchgear accessory

In case of customer-specific designs, individual points of the switchgear description might no longer be valid. The offered scope of supply is equipped in detail as follows:



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Item No.	Quantity	Description	Typical No.
----------	----------	-------------	-------------

5.1	2	Circuit-breaker panel 1250 A- ВЪВОД	=JZ01
-----	---	--	-------

Maximum permissible feeder current at 35 °C: 1290 A
 each consisting of:



5.1.1

Busbar compartment

single-pole insulated busbars for single-busbar system, rated current 1250 A

plugged-in and bolted, consisting of round-bar copper, insulated with silicone rubber, busbar joints with cross and end adapters consisting of silicone rubber.

5.1.2

Switchgear vessel

Hermetically welded switchgear vessel made of stainless steel, filled with SF₆ at a rated filling level of 1500 hPa, equipped with bushings for busbar and cable connection.
 with ready-for-service indicator

Three-position disconnecter

Application in hermetically welded switchgear vessel, contacts in the SF₆-filled switchgear vessel are climate-independent, operation via gas-tight welded-in metal bellows or welded-in rotary bushings, spring-operated mechanism or slow motion mechanism outside the SF₆-filled switchgear vessel, reliable position indication up to the operating front of the panel.
 Number of mechanical and electrical operating cycles:

2,000 for DISCONNECTING function

1,000 for READY-TO-EARTH function

With manual operating mechanism for DISCONNECTING and EARTHING functions

Free contacts of auxiliary switch

6 NO + 6 NC

With mechanical interlocking between three-position disconnecter and circuit-breaker

With control gate with locking device

Vacuum circuit-breaker

Application in hermetically welded switchgear vessel, vacuum interrupters inside the SF₆-filled switchgear vessel are climate-independent, operation via gas-tight welded-in metal bellows, motor operating stored-energy mechanism outside the SF₆-filled switchgear vessel.

Rated voltage: 24.0 kV

Rated short-time withstand current: 25.0 kA

Rated current: 1250 A

Rated operating sequences:

Rapid load transfer (U): O-0.3s-CO-3min-CO

Auto-reclosing (K): O-0.3s-CO-3min-CO

Number of mechanical and electrical operating cycles: 10,000

With motor operating stored-energy mechanism AC 230 V

With the following release combination:



Customer: CEZ
Project: NXPLUS C SST Kokaliane
Reference: 17363

Offer for NXPLUS C
Medium voltage switchgear
NXPLUS_C-56649

1 shunt release
Voltage of closing solenoid AC 230 V
Voltage of 1st shunt release AC 230 V
Free contacts of auxiliary switch
10 NO + 6 NC
Feeder locking device with interlocking to three-position disconnecter
With auxiliary switch for "feeder locking device"
Mechanical closing of circuit-breaker
Mechanical opening of circuit-breaker

5.1.3

Cable compartment

Outside-cone bushings interface type "C" with bolted M16 contact.
Cable connection height 702 mm
with cable brackets

Panel connection

Number of cables per phase 1 cable
Pre-assembled cable clamps
without
Cable cross-section 185 mm²
Cable connection from front-bottom
Earthing busbar,
arranged in the rear of cable compartment,
equipped with 2 connection points
Cable connection is prepared for the following chosen combination of
cable-T-plug:
Make: Tyco Electronics
Cable T-plug: 1x RSTI-5855
Coupling plug: without
Coupling insert: without
Deeper cable compartment cover: without

Capacitive voltage detecting system at the feeder

Design:
LRM system (low resistance modified) with plug-in indicator for the
selected operating voltage

Current transformers on the bushing

(Customer supply)
Current transformer type: 4MC4_30
Designed as a ring-core current transformer, single-pole, inductive type,
climate-independent, secondary connection via terminal strip inside the
low-voltage compartment of the panel.
Arranged outside the primary enclosure (switchgear vessel).
Current transformer installation in the panel
3 x 2 cores in L1/L2/L3
Primary current, core 1 : 1250 A
Primary current, core 2 : 1250 A
Secondary current, core 1 : 5 A
Secondary current, core 2 : 5 A
Rating, class and overcurrent factor of core 1 : 15 VA / Cl. 0.5 S / FS5
Rating, class and overcurrent factor of core 2 : 30 VA / Cl. 10P / 20
1.2 x rated current

Customer: CEZ
Project: NXPLUS C SST Kokaliane
Reference: 17363

Offer for NXPLUS C
Medium voltage switchgear
NXPLUS_C-56649

With routine test certificate



Voltage transformers at the feeder

Voltage transformer type: 4MT3

Single-pole plug-in design, inductive type, climate-independent, switchable through an SF6-insulated disconnecting facility in the switchgear vessel, operated from outside through a welded-in metal bellows.

Arranged outside the primary enclosure (switchgear vessel).

3 x single-pole with earth-fault winding and damping resistor

Metal-coated

Highest voltage for equipment: 24 kV

Operating voltage: 20.0 kV

Rated short-duration power-frequency withstand voltage: 50 kV

Rated lightning impulse withstand voltage: 125 kV

Voltage of secondary winding: 100 / $\sqrt{3}$ V

Rating and class of secondary winding: 50 VA / Cl. 0.5

Voltage of earth-fault winding: 100 / 3 V

Rating and class of earth-fault winding: 50 VA / 6P

With routine test certificate

Surge arrester / Surge limiter

Can be plugged into the cable T-plug

Surge arrester for lightning protection: RSTI-CC-68SA2410-2

5.1.4

Low-voltage compartment

For accommodation of protection, control, measuring and metering equipment

Separated from the high-voltage part of the panel, safe-to-touch, removable, bus wires and control cables are plugged in

Height: 761 mm

5.1.5

3

Customer-specific designs

Current transformer, Type 4MC4_30

for Switchgear NXPLUS C

Rated short-time withstand current 31.5 kA, 1 s

50 Hz, IEC

Routine test certificate: German / English

1.2x rated current

Min./Max. ambient air temperature Operation: -5 °C / 55 °C

Min./Max. ambient air temperature Storage and transport: -25 °C / 70 °C

1. core

1250 A / 5 A

15 VA Cl. 0.5SFS5

Used in Phase L1 L2 L3

2. core

1250 A / 5 A

30 VA Cl. 10P20

Used in Phase L1 L2 L3

The transformers should be at 31.5kA/1s lth



Customer: CEZ
 Project: NXPLUS C SST Kokafiane
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Offer for NXPLUS C
 Medium voltage switchgear
 NXPLUS_C-56649

Item No.	Quantity	Description	Typical No.
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5.2	6	Circuit-breaker panel 1000 A- Извод	=JZ02
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Maximum permissible feeder current at 35 °C: 1071 A
 each consisting of:

5.2.1

Busbar compartment

single-pole insulated busbars for single-busbar system, rated current 1250 A
 plugged-in and bolted, consisting of round-bar copper, insulated with silicone rubber, busbar joints with cross and end adapters consisting of silicone rubber.

5.2.2

Switchgear vessel

Hermetically welded switchgear vessel made of stainless steel, filled with SF₆ at a rated filling level of 1500 hPa, equipped with bushings for busbar and cable connection.
 with ready-for-service indicator

Three-position disconnecter

Application in hermetically welded switchgear vessel, contacts in the SF₆-filled switchgear vessel are climate-independent, operation via gas-tight welded-in metal bellows or welded-in rotary bushings, spring-operated mechanism or slow motion mechanism outside the SF₆-filled switchgear vessel, reliable position indication up to the operating front of the panel.

Number of mechanical and electrical operating cycles:

2,000 for DISCONNECTING function

1,000 for READY-TO-EARTH function

With manual operating mechanism for DISCONNECTING and EARTHING functions

Free contacts of auxiliary switch

6 NO + 6 NC

With mechanical interlocking between three-position disconnecter and circuit-breaker

With control gate with locking device

Vacuum circuit-breaker

Application in hermetically welded switchgear vessel, vacuum interrupters inside the SF₆-filled switchgear vessel are climate-independent, operation via gas-tight welded-in metal bellows, motor operating stored-energy mechanism outside the SF₆-filled switchgear vessel.

Rated voltage: 24.0 kV

Rated short-time withstand current: 25.0 kA

Rated current: 1250 A

Rated operating sequences:

Rapid load transfer (U): O-0.3s-CO-3min-CO

Auto-reclosing (K): O-0.3s-CO-3min-CO

Number of mechanical and electrical operating cycles: 10,000

With motor operating stored-energy mechanism AC 230 V

With the following release combination:

Customer: CEZ
Project: NXPLUS C SST Kokaliane
Reference: 17363

Offer for NXPLUS C
Medium voltage switchgear
NXPLUS_C-66649

1 shunt release
Voltage of closing solenoid AC 230 V
Voltage of 1st shunt release AC 230 V
Free contacts of auxiliary switch
10 NO + 6 NC
Feeder locking device with interlocking to three-position disconnecter
With auxiliary switch for "feeder locking device"
Mechanical closing of circuit-breaker
Mechanical opening of circuit-breaker



5.2.3

Cable compartment

Outside-cone bushings interface type "C" with bolted M16 contact.
Cable connection height 702 mm
with cable brackets

Panel connection

Number of cables per phase 1 cable
Pre-assembled cable clamps
without
Cable cross-section 150 mm²
Cable connection from front-bottom
Earthing busbar,
arranged in the rear of cable compartment,
equipped with 2 connection points
Cable connection is prepared for the following chosen combination of
cable-T-plug:
Make: Tyco Electronics
Cable T-plug: 1x RSTI-5853
Coupling plug: without
Coupling insert: without
Deeper cable compartment cover: without

Capacitive voltage detecting system at the feeder

Design:
LRM system (low resistance modified) with plug-in indicator for the
selected operating voltage

Current transformers on the bushing

(Customer supply)
Current transformer type: 4MC4_30
Designed as a ring-core current transformer, single-pole, inductive type,
climate-independent, secondary connection via terminal strip inside the
low-voltage compartment of the panel.
Arranged outside the primary enclosure (switchgear vessel).
Current transformer installation in the panel
3 x 2 cores in L1/L2/L3
Primary current, core 1 : 400 A
Primary current, core 2 : 400 A
Secondary current, core 1 : 5 A
Secondary current, core 2 : 5 A
Rating, class and overcurrent factor of core 1 : 15 VA / Cl. 0.5 S / FS5
Rating, class and overcurrent factor of core 2 : 20 VA / Cl. 10P / 20
1.2 x rated current

Customer: CEZ
Project: NXPLUS C SST Kokaliane
Reference: 17363

Offer for NXPLUS C
Medium voltage switchgear
NXPLUS_C-56649

With routine test certificate



Surge arrester / Surge limiter

Can be plugged into the cable T-plug
Surge arrester for lightning protection: RSTI-CC-68SA2410-2

5.2.4

Low-voltage compartment

For accommodation of protection, control, measuring and metering equipment
Separated from the high-voltage part of the panel, safe-to-touch, removable, bus wires and control cables are plugged in
Height: 761 mm

5.2.5

3

Customer-specific designs

Current transformer, Type 4MC4_30
for Switchgear NXPLUS C
Rated short-time withstand current 31.5 kA, 1 s
50 Hz, IEC
Routine test certificate: German / English
1.2x rated current
Min./Max. ambient air temperature Operation: -5 °C / 55 °C
Min./Max. ambient air temperature Storage and transport: -25 °C / 70 °C
1. core
400 A / 5 A
15 VA Cl. 0.5SFS5
Used in Phase L1 L2 L3
2. core
400 A / 5 A
25 VA Cl. 10P20
Used in Phase L1 L2 L3

Customer: CEZ
 Project: NXPLUS C SST Kokaliane
 Reference: 17363

Offer for NXPLUS C
 Medium voltage switchgear
 NXPLUS_C-56649


Accessories

Item No.	Quantity	Description	Typical No.
5.3		Switchgear accessories comprising:	=JZ00
		Without acceptance of panels at the factory	
	1	Left end wall	
	1	Right end wall, with service flap	
	1	Operating lever for disconnecter mechanism	
		Operating lever for earthing switch mechanism	
		Hand crank for charging the circuit-breaker operating mechanism	
		Socket spanner for doors	
		TORX screwdriver	
		Adapter for emergency operation of three-position-switch (only 900mm panels)	
	3	Voltage indicator for LRM system (pluggable), for switchgear with capacitive voltage tap, make Horstmann, type LRM-ST	
	1	TORX screwdriver size T25	
	1	Operating and installation instructions for NXPLUS C switchgear, single busbar (with 900-mm wide panels) in English	
	1	Straight evacuation duct, length 500 mm, sendzimir galvanized	
	1	Straight wall outlet for evacuation through wall, length 370 mm, with flaps, sendzimir galvanized	
	2	Fixing bracket, sendzimir galvanized	
	2	Material assembly evacuation duct	
	1	Material assembly evacuation duct	

Customer: CEZ
Project: NXPLUS C SST Kokaliane
Reference: 17363

Offer for NXPLUS C
Medium voltage switchgear
NXPLUS_C-56649

6 Documentation

- | | | | |
|-----|---------------------------|---|---------|
| 6.1 | Single-Line Diagram |  | Annex 1 |
| 6.2 | Panel Arrangement Diagram | | Annex 2 |
| 6.3 | Constructional Data | | Annex 3 |