



# **NXPLUS C 24 – blue GIS**

## Gas-Insulated Medium-Voltage Switchgear

[siemens.com/nxplusc24](https://www.siemens.com/nxplusc24)

**SIEMENS**

# Features



The successful product family NXPLUS C – “The Multi-Tool” is expanded with the new NXPLUS C 24 – blue GIS. This is a switchgear using Clean Air – an insulating gas exclusively consisting of natural elements of the ambient air.

The new gas-insulated circuit-breaker switchgear with Clean Air is a single-busbar switchgear for primary distribution grids up to 24 kV, 25 kA, and 1250 A. It features circuit-breaker, bus sectionalizer and disconnectors typical, and offers a broad range of application options thanks to its variable built-on and built-in components.



Compact dimensions enable an effective use of rooms. The hermetically tight, welded stainless-steel switchgear vessel makes the switchgear independent of the site altitude and protects against various ambient conditions, such as ingress of pollution, air humidity, dust, or small animals.

NXPLUS C 24 can be used in power utilities as well as in multiple other power supply applications. These are, for example, transformer and switching substations, traction power supply systems, cement industry, automobile industry, textile, paper and food industries, chemical and pharmaceutical industries, airports and ports, rolling mills, shipbuilding industry, and many more.



NXPLUS C 24 is equipped with integrated sensors and communication interfaces to higher-level automation systems and the Internet of Things (IoT).

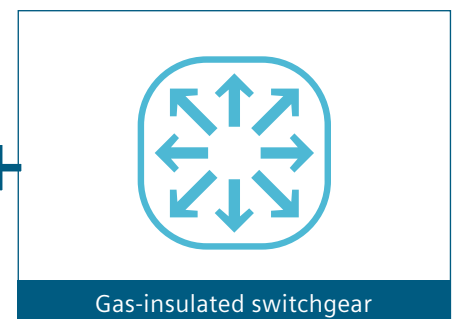
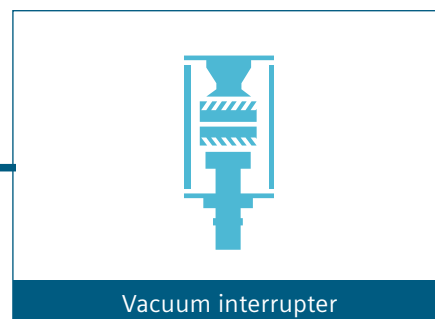
Transparency is therefore increased at relevant nodes in the distribution grid, and the power distribution is easier to monitor and control.

Most modern protection and control devices in combination with sensors enable innovative switchgear concepts and cost-efficient operation.

With this thoroughly studied switchgear concept, the service life to be expected is at least 40 years under normal operating conditions.

## blue GIS

The new NXPLUS C 24 with Clean Air belongs to the “blue GIS” portfolio of Siemens AG. Every GIS of this portfolio is equipped with Clean Air and the proven Siemens vacuum technology. It meets the expectations of the Siemens customers further on, for example, with respect to switchgear availability, maintenance-free design, personal safety, environmental independence and cost-efficiency. The insulating gas Clean Air consists of the natural elements of the ambient air and is therefore free of fluorine gases, with a global warming potential <1, highly stable, non-toxic, non-flammable, and suitable for every application temperature.



# Technical data

## Switchgear

### Common technical data

Rated voltage $U_r$	kV	7.2	12	15	17.5	24
Rated short-duration power-frequency withstand voltage $U_d$						
– phase-to-phase, phase-to-earth, open contact gap	kV	20 (32)	28 (42)	36	38	50
– across the isolating distance	kV	23 (37)	32 (48)	40	45	60
Rated lightning impulse withstand voltage $U_p$						
– phase-to-phase, phase-to-earth, open contact gap	kV	60	75 (95)	95	95	125
– across the isolating distance	kV	70	85 (110)	110	110	145
Rated frequency $f_r$	Hz	50/60				
Rated continuous current $I_r$ of the busbar	up to A	2500				
Insulating medium		Clean Air				
GWP (global warming potential)		< 1				
Rated filling level (absolute) $p_{re}$	kPa	190				
Width	mm	600/900				
Depth	mm	1225				
Height <sup>1)</sup>	mm	2250				
Ambient air temperature range <sup>2)</sup>	°C	–5 °C to +55 °C				
Internal arc classification IAC		IAC A FL 25 kA 1 s IAC A FLR 25 kA 1 s				
Partition class		PM				
Loss of service continuity		LSC 2				
Degree of protection <sup>3)</sup>		Primary part IP65 Switchgear enclosure IP3XD				
Expected service life <sup>4)</sup>		> 40 years				
Standards		IEC 62271-1/-100/-200				

### Data of the switchgear panels: circuit-breaker, bus sectionalizer, disconnecter

Rated continuous current $I_r$	A	630, 1250
Rated short-time withstand current $I_k$	$t_k = 3$ s up to kA	25
Rated peak withstand current $I_p$	up to kA	63/65
Rated short-circuit making current $I_{ma}$	up to kA	63/65
Rated short-circuit breaking current $I_{sc}$	up to kA	25
Electrical endurance of vacuum circuit-breakers	at rated continuous current	10,000 operating cycles
	at rated short-circuit breaking current	50 breaking operations

1) Optionally 2650 mm (with higher low-voltage compartment)

2) Optionally –25 °C to +55 °C

3) Optionally IP31D, IP32D

4) Under normal operating conditions

# Product range

## Individual panels



Three-position  
disconnector



Vacuum circuit-  
breaker



Capacitive voltage  
detecting system



Current transformer



Short-circuit /  
earth-fault indicator



Voltage sensor



Voltage sensor at  
the busbar



Surge arrester



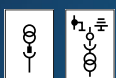
Solid-insulated bar



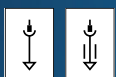
Zero-sequence  
current transformer



SiBushing (integrated  
measurement of  
current, voltage, and  
temperature)



Plug-in voltage  
transformer with or  
without disconnector



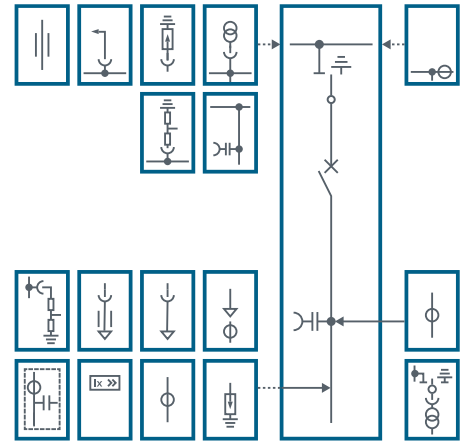
Panel connection  
with outside-cone  
plug (up to 4 cables)  
or bar connection



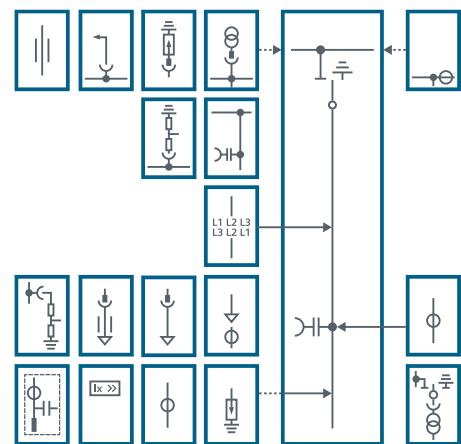
Phase rotation

Further version for dummy panel  
is available

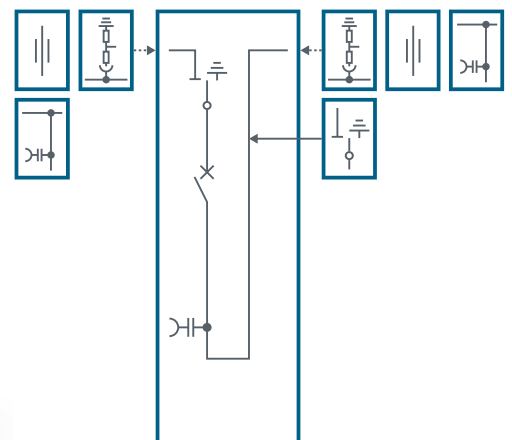
### Circuit-breaker panel (LS)



### Disconnecter panel (TS)

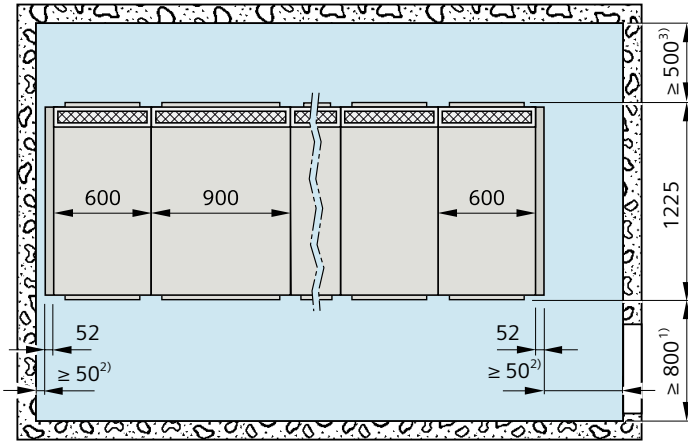


### Bus sectionalizer (LK)

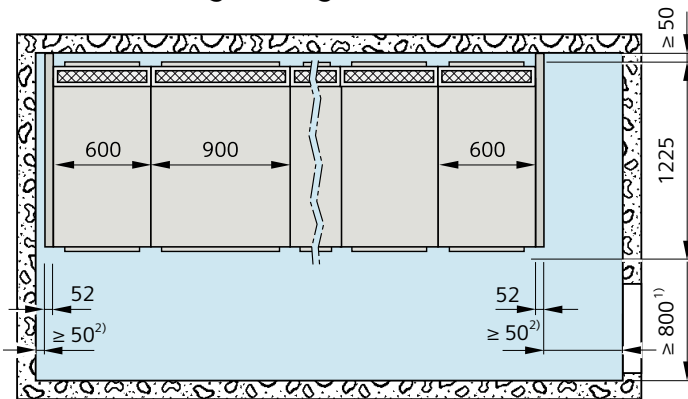


# Room planning

## Free-standing arrangement



## Wall-standing arrangement



### Switchgear installation

For single-busbar applications:

- Wall-standing arrangement or
- Free-standing arrangement
- Face-to-face arrangement accordingly

### Door dimensions

The following dimensions are recommended as a minimum for the door dimensions:

- Door height:  $\geq 2500$  mm
- Door width:  $\geq 900$  mm (for panel widths of 600 mm)  
 $\geq 1200$  mm (for panel widths of 900 mm)

### Weights

Single-busbar panels

- 600 mm panels: approx. 800 kg
- 900 mm panels: approx. 1400 kg

### Room height

- $\geq 2750$  mm NXPLUS C, all technical data, all types of installation, with/without horizontal pressure relief duct
- $\geq 2400$  mm NXPLUS C, wall-standing and free-standing arrangement, busbar 1250 A, LV compartment 761 mm, without horizontal pressure relief duct

1) Depending on national requirements, for extension / panel replacement: control aisle  $\geq 1400$  mm recommended (600 mm panels)  
 $\geq 1600$  mm recommended (900 mm panels)

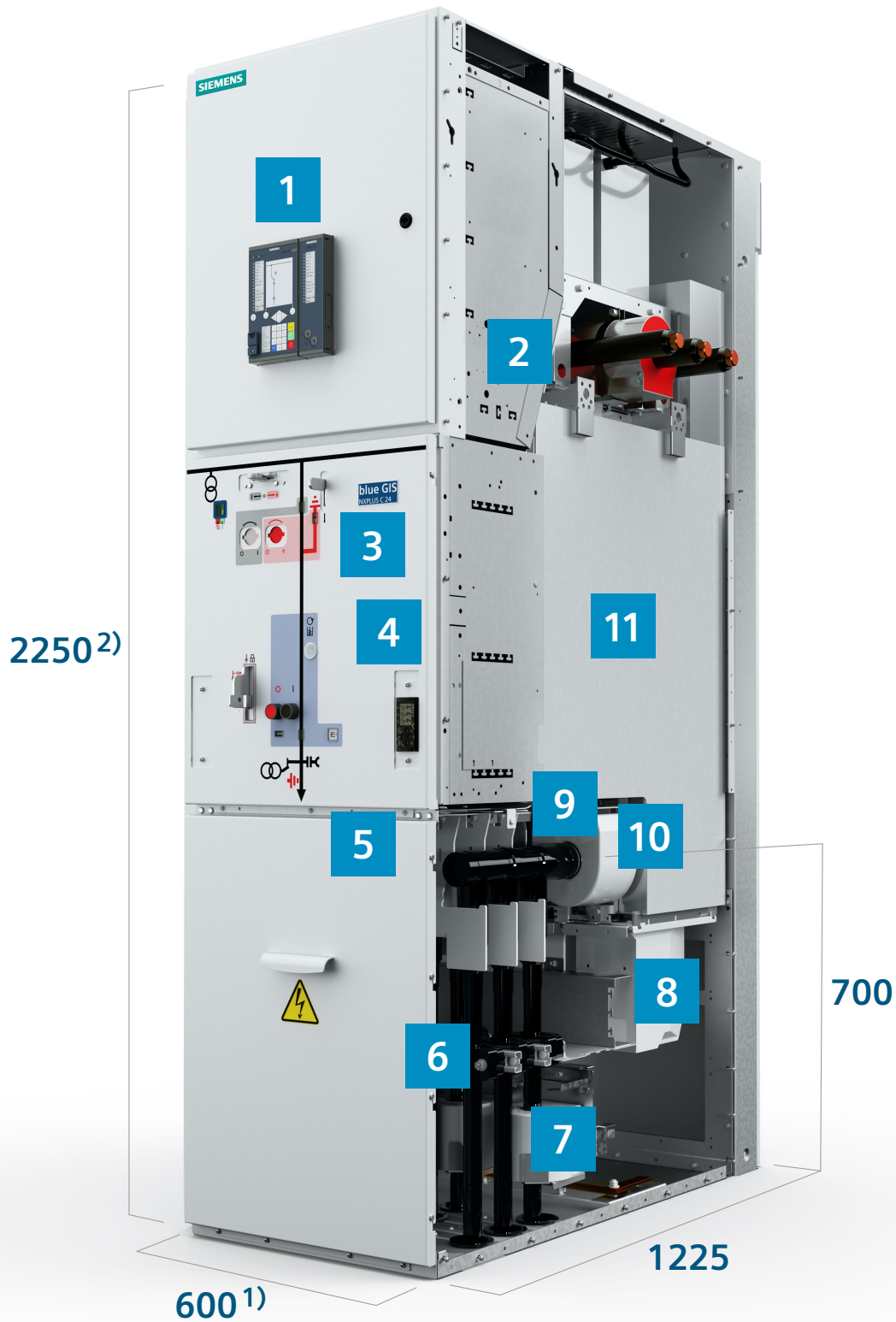
2) Lateral wall distances on the left or right: for installation and maintenance (acc. to IEC 61936-1):  $\geq 500$  mm recommended

3)  $\geq 500$  mm aisle for installation and maintenance (acc. to IEC 61936-1)  
 $\geq 800$  mm aisle for control (acc. to IEC 62271-200)



# Design

## Overview



1) Bus sectionalizer: 900 mm

2) Low-voltage compartment: 761 mm

# Design

## Overview

### 1. Low-voltage compartment

- Customer-specific options possible in different heights, 761 mm and 1161 mm

### 2. Busbar

- Single-pole, plug-in and bolted
- Consisting of round-bar copper, insulated by means of silicone rubber
- Busbar connection with cross and end adapters, insulated by means of silicone rubber
- Field control by means of electrically conductive layers on the silicone-rubber insulation (both inside and outside)
- Touchable as the external layers are earthed via the switchgear vessel
- Insensitive to pollution and condensation
- Switchgear extension or panel replacement without gas work
- Safe-to-touch due to metal cover

### 3. Three-position disconnecter

- Three-position switch according to IEC 62271-102 with the classes M1 and E0
- Switch positions: CLOSED, OPEN, EARTHED or READY-TO-EARTH
- Option: Motor operating mechanism for the functions DISCONNECTING, EARTHING or READY-TO-EARTH

### 4. Circuit-breaker

- According to IEC 62271-100 with the classes M2, E2, and C2
- Maintenance-free under normal operating conditions according to IEC 62271-1
- Auxiliary switch: 6 NO + 6 NC, option: 12 NO + 12 NC
- With closing solenoid, 1<sup>st</sup> shunt release, anti-pumping device, circuit-breaker tripping signal, varistor module, position switches, and operations counter
- Options: 2<sup>nd</sup> shunt release, undervoltage release, c.-t.-operated release

### 5. Indicators

- Voltage detecting systems according to IEC 61243-5, IEC 62271-206
- Option: Short-circuit/earth-fault indicator

### 6. Cable compartment

- Cable connection to bushing with bolted contact (M16) as interface type C according to EN 50181
- Cable connection height: 700 mm
- Max. connection depth: 590 mm
- With cable bracket type C40 according to DIN EN 50024
- Connection with up to 4 cables per phase
- Option: Access to the cable compartment only if the feeder has been disconnected and earthed
- Cable routing downwards, cable connection from the front
- For thermoplastic-insulated cables
- For shielded cable T-plugs
- For connection cross-sections up to 1200 mm<sup>2</sup>

### 7. Current transformers

- Ring-core current transformers possible at the busbar, at the cable connection, and on the cable
- Free of thermally and dielectrically stressed cast-resin parts (due to design)

### 8. Voltage transformers

- Single-pole insulated, metal-enclosed voltage transformer at the busbar
- Single-pole insulated, metal-coated voltage transformer at the feeder with disconnecting facility

### 9. Current and voltage sensors

- Single-phase inductive current sensor according to IEC 60044-8
- Voltage sensor (resistor divider) according to IEC 60044-7

### 10. SiBushing

- Outside-cone bushing type C with integrated current, voltage and temperature measurement

### 11. Enclosure

- Hermetically tight, welded switchgear vessel made of stainless steel
- Enclosure made of sendzimir-galvanized sheet steel, switchgear front and side walls powder-coated in RAL 7035

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