

NXPLUS C 24 – blue GIS Gas-Insulated Medium-Voltage Switchgear

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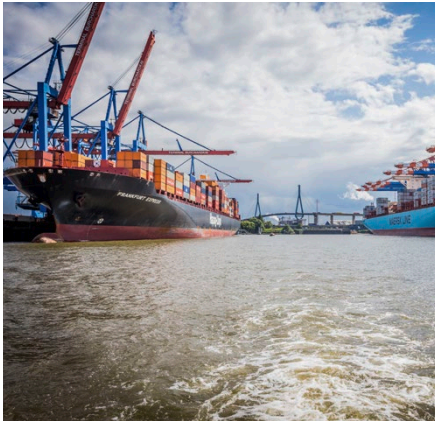
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Features



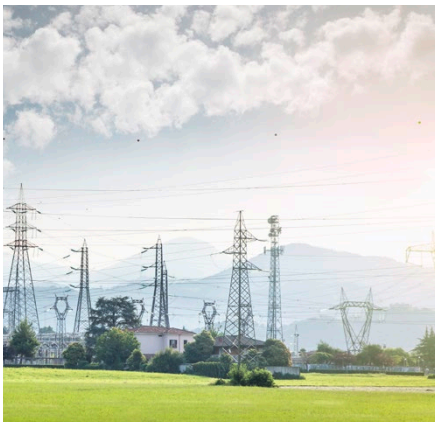
The successful product family NXPLUS C – “The Multi-Tool” is expanded with the new NXPLUS C 24 – blue GIS. This is a switchgear using Clean Air – an insulating gas exclusively consisting of natural elements of the ambient air.

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 disconnecter typicals, 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).

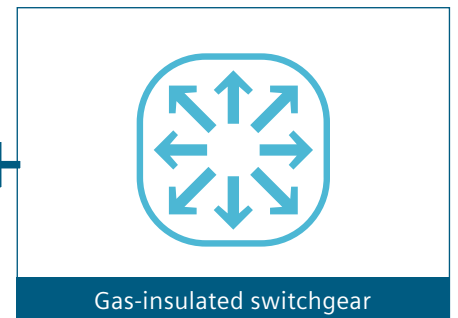
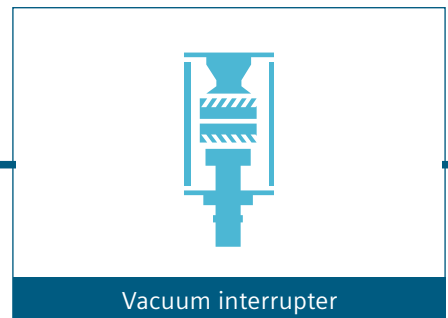
Transparency is therefore increased at relevant nodes in the distribution grid, and the power distribution is easier to monitor and control.

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 35 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

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 ¹⁾	mm	2250				
Ambient air temperature range ²⁾	°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 ³⁾		Primary part IP65 Switchgear enclosure IP3XD				
Expected service life ⁴⁾		> 35 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	10000 operating cycles
	at rated short-circuit breaking current	50 breaking operations

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

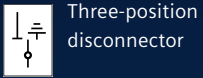
2) Optionally –25 °C to +55 °C

3) Optionally IP31D, IP32D

4) Under normal operating conditions

Overview of typicals

Built-in and built-on components



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



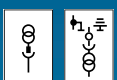
Solid-insulated bar



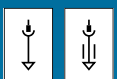
Zero-sequence current transformer



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



Plug-in voltage transformer with or without disconnector



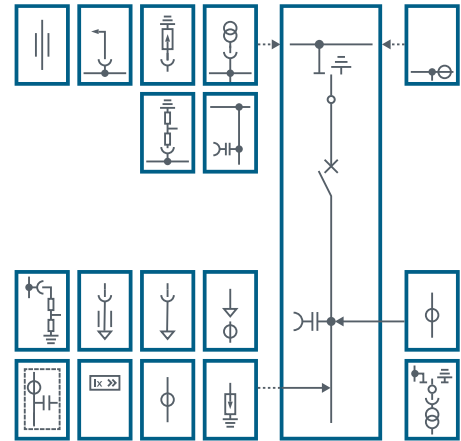
Panel connection with outside-cone plug (up to 4 cables) or bar connection



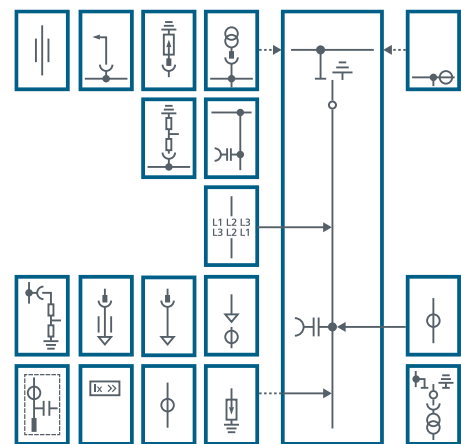
Phase rotation

Further version for dummy panel is available

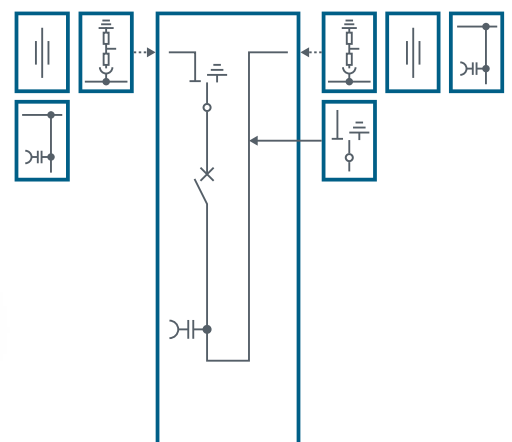
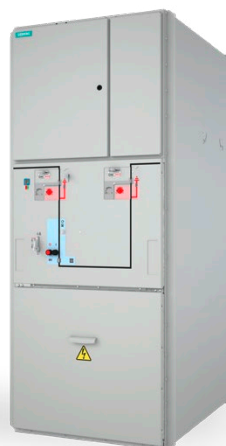
Circuit-breaker panel (LS)



Disconnector panel (TS)

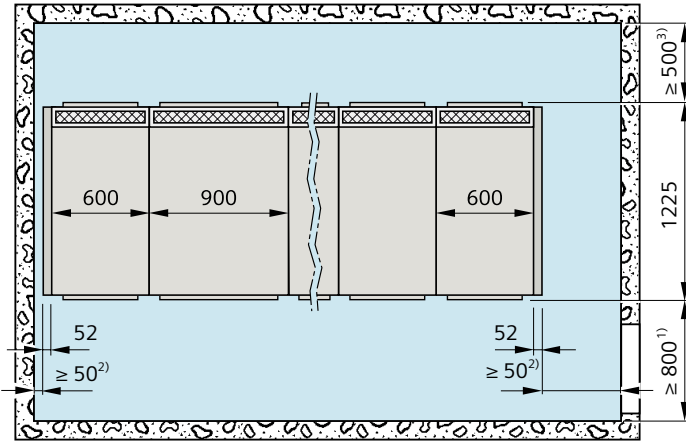


Bus sectionalizer (LK)

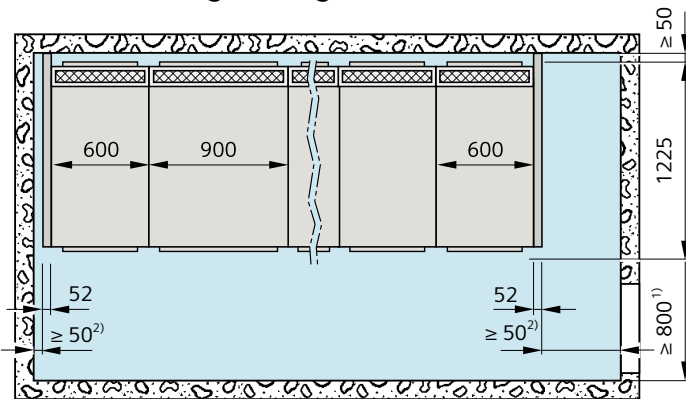


Room planning

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: ≥ 2500 mm
- Door width: ≥ 900 mm (for panel widths of 600 mm)
 ≥ 1200 mm (for panel widths of 900 mm)

Weights

Single-busbar panels

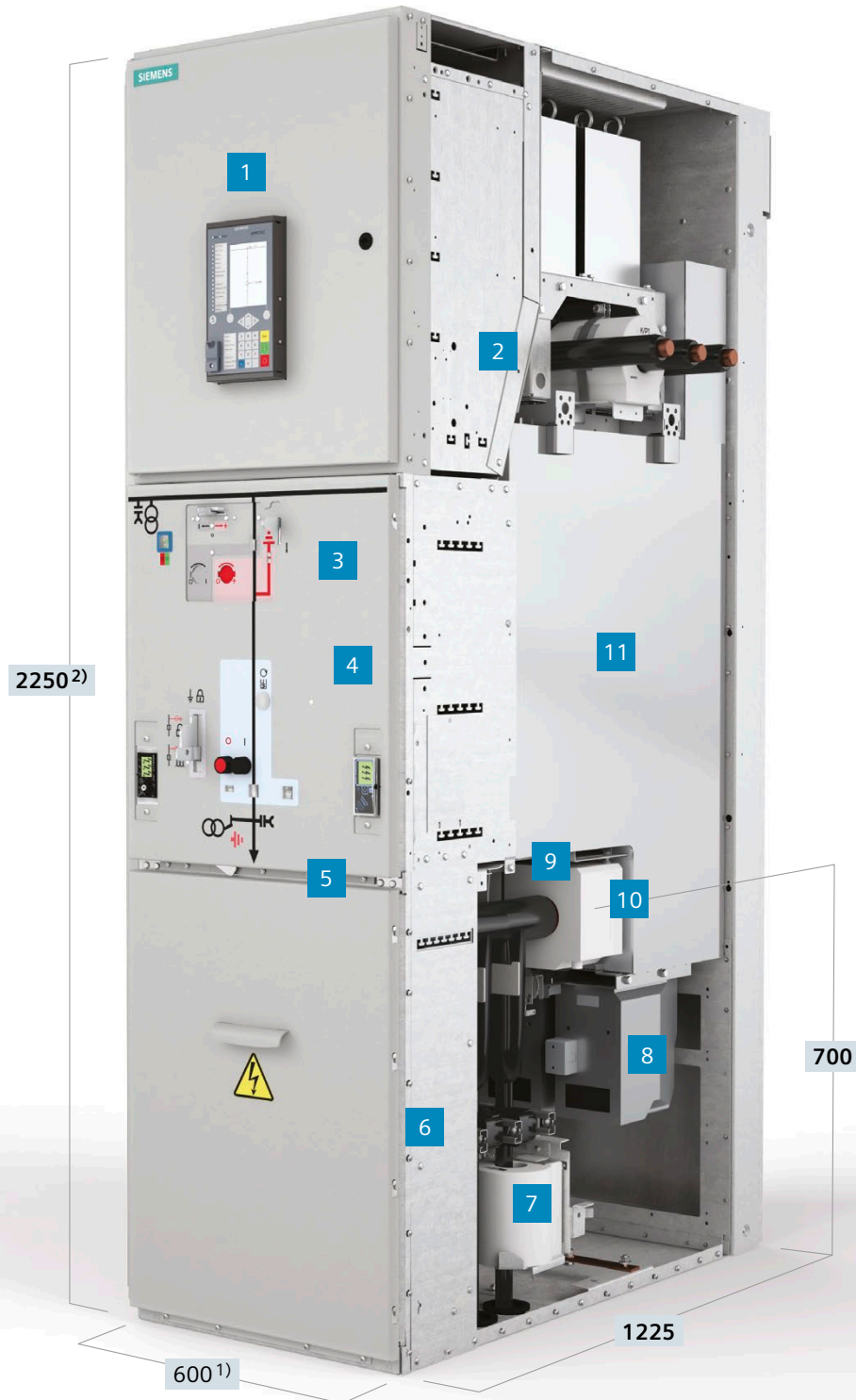
- 600 mm panels: approx. 800 kg
- 900 mm panels: approx. 1400 kg

Room height

- ≥ 2750 mm NXPLUS C, all technical data, all types of installation, with/without horizontal pressure relief duct
- ≥ 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 ≥ 1400 mm recommended (600 mm panels)
 ≥ 1600 mm recommended (900 mm panels)
- 2) Lateral wall distances on the left or right: for installation and maintenance (acc. to IEC 61936-1): ≥ 500 mm recommended
- 3) ≥ 500 mm aisle for installation and maintenance (acc. to IEC 61936-1)
 ≥ 800 mm aisle for control (acc. to IEC 62271-200)

Product range



1) Bus sectionalizer: 900 mm

2) Low-voltage compartment: 761 mm

I Product range

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, 1st shunt release, anti-pumping device, circuit-breaker tripping signal, varistor module, position switches, and operations counter
- Options: 2nd 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 mm²

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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