

## DRIESCHER - Air-Insulated Medium-Voltage Switchgears

- Type W 24 - 901121
- Rated voltage 24 kV
- Rated current up to 1250 A



# W 24

ELEKTROTECHNISCHE WERKE  
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## DRIESCHER - 24 kV Switchgears

in compliance with EN 62271-200

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INSTITUT „PRÜFFELD FÜR ELEKTRISCHE HOCHLEISTUNGSTECHNIK“ GMBH 

Unabhängiges, akkreditiertes Prüflaboratorium · Mitgliedsprüffeld bei STL und LOVAG

# TYPPRÜFBERICHT

NR. 1283.0345.6.085 AUFTRAGGEBER

Elektrotechnische Werke  
Fritz Driescher & Söhne GmbH  
Driescherstraße 3  
85368 Moosburg HERSTELLER

Elektrotechnische Werke  
Fritz Driescher & Söhne GmbH PRÜFOBJEKT

Metallgekapselte Wechselstrom-Schaltanlage TYP

W24-901121 FERTIGUNGS-NR.

Prüfmuster				
Bemessungs-Spannung	U <sub>n</sub>	24 kV	BEMESSUNGS-DATEN NACH ANGABEN DES AUFTRAGGEBERS	
Bemessungs-Betriebsstrom	I <sub>b</sub>	630 A		
Bemessungs-Stoßstrom	I <sub>st</sub>	50 kA		
Bemessungs-Kurzzeitstrom	I <sub>kt</sub>	20 kA		
Bemessungs-Kurzschlussdauer	t <sub>kt</sub>	3 s		
Störlöschbogenqualifikation		IAC AFLR 20 kA 1 s		

IEC 62271-200: 2003-11 PRÜFVORSCHRIFT

Prüfung des Verhaltens bei inneren Fehlern UMFANG DER PRÜFUNG

17. März 2006 DATUM DER PRÜFUNG

Die den Umfang der Prüfung betreffenden Bemessungswerte des PRÜFERGEBNIS  
Prüfobjektes wurden nachgewiesen.  
Die Prüfung wurde BESTANDEN.

  
H. GLÖSCH  
Leiter Prüffelder  
Berlin, den 29. Juni 2006

  
W. MORITZ  
Verantwortlicher Prüflingenieur





Unabhängiges Prüflaboratorium, akkreditiert von der Deutschen Akkreditierungsstelle Technik (DAkT) eV für die Bereiche Hochspannungstechnik und -anlagen, Starkstromkabel und Starkstromkabel-Gebläse, Niederspannungstechnik und -anlagen, Installationsgeräte sowie Schalt-, Regel- und Steuerungseinrichtungen.

IPH · LANDSBERGER ALLEE 378 · D-12681 BERLIN · TEL. 030/54 96 02 00 · FAX 030/54 96 02 22

DAT - P - 019/92

## General

The metal-enclosed, air-insulated medium-voltage switchgears, Type W 24 can be universally applied:

They range from the compact ring cable switchgears up to complex power distribution switchgears.

Tailored to meet the needs of networks of public utilities and power supply companies in industry and municipal buildings.

These medium-voltage switchgears meet the specific requirements put by the user in full and ensure a satisfactory power distribution.

**The switch panels of Type W 24 - 901121 measure 900 mm in width, 1100 mm in depth and 2100 mm in height.**

They are available as individual panels or as a switchgear unit, the equipment and panel sequence of which can be selected by the customer.

The switch panels are type-tested in compliance with DIN VDE 0671, Part 200 including Pehla directive no. 4.

## Operating Conditions

The switch panels of Type W 24 are installed in closed electrical operating areas which are only to be entered by skilled personnel and appropriately instructed persons.

The equipment can be used at an altitude of up to 1000 m above sea level.

For installations above an altitude of 1000 m the rated insulating level of the switchgear must be corrected accordingly. The switch panels are designed for use under normal operating conditions in compliance with the standard EN 62271-1.

## Technical Standards

The design of the air-insulated switch panels corresponds to the specifications of the EN 62271-200. The resistance to accidental arcs of the switch panels has been determined at 16, 20, 25 and 31.5 kA; 1 s, by and independent testing institute. The installed

switchgear equipment is designed in compliance with EN 62271-1.

The degree of protection of the switch panels corresponds to IP 3X.

## Technical Data

Rated voltage	$U_r$ 24 kV	Rated short-circuit duration	$t_k$ 1 s
Rated lightning impulse withstand voltage	$U_p$ 125 kV	Rated frequency	$f_r$ 50 Hz
Rated short-time withstand voltage	$U_d$ 50 kV		

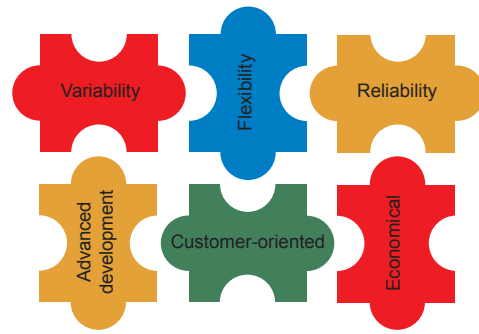
Technical data for the installed switchgear equipment	Rated (operating) current $I_r$	Rated short-time current $I_k$	Rated peak current $I_p$
Panels with switch-disconnector H 27	630 A	up to 20 kA	up to 50 kA
Panels with switch-disconnector H 22	630 A and 1250 A	up to 31,5 kA	up to 80 kA
Panels with circuit breaker V 24	up to 1600 A	up to 31,5 kA	up to 80 kA

Technical data on the installed switchgear equipment are available for

- Switch-disconnector H 22 in list 722
- Switch-disconnector H 27 in list 727
- Earthing and disconnecting switches in list 731
- Circuit breakers in list 747

## Benefits

- **Flexible**, based on the combination possibility with panel type D 24
- **Safe and reliable** through the high quality of our products
- **Economical** based on continuous further development
- **Compact dimensions**
- **Easy handling**
- **Minimum amount of maintenance**



## Description of the Switch Panels

### Design

The air-insulated medium-voltage switch panels of Type W 24 - 901121 are metal-encapsulated.

The switch panel frame is made of a screwed, hot-galvanized composite structure.

The front of the switch panels has a single-wing door of steel plate with the door hinge optionally on the right or left. A window of compound glass is inserted in the door.

The cover in front of the bus bar area is either screwed on or designed as a door for the relay box positioned behind it.

Each switch panel has a screwed on rear panel of galvanized sheet metal.

Connecting cables are conducted into the switch panels from below and are mounted on cross rails which can be adjusted in two dimensions.

The doors and covers of the switchgear are painted in structural paint (available in different colours according to the customer's request).

### Equipment

The switch panels of Type W 24 are available in the following versions:

- Cable switch panel           Type WK 24
- Transformer feeder panel   Type WT 24
- Measuring switch panel    Type WM 24
- Bus sectionalizer panel    Type WÜ 24
- Circuit-breaker panel       Type WL 24

The switch panels are optionally designed with a bus bar compartment which is either open or closed at the side.

Pressure relief can be in upward or downward direction.

Switch panels equipped with switch-disconnectors can optionally be fitted with an earthing switch.

In circuit-breaker panel, Type WL 24, there is also an integrated bus disconnecter in addition to the circuit breaker.

It is also possible to equip these panels with a set of current and voltage transformers as well as with an earthing switch.

The relay boxes extend over the entire width of the switch panels. These measure 265 mm in depth and are available in 3 different heights (455, 635 and 815 mm, see Page 11).

The optional interlocking features of the devices practically rule out any incorrect operation.

All installed switchgear equipment can be operated manually or via motor-operated mechanism with closed panel door.

Special measuring panels equipped with current and voltage transformers complete the program.

Earthing switches or spherical fixed points are available for earthing and short-circuiting.

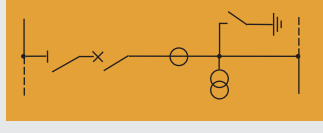
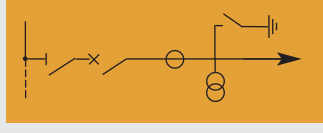
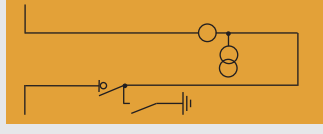
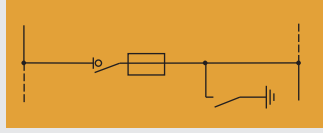
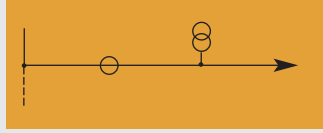
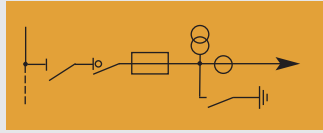
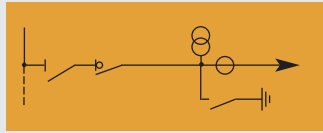
An insulating protective barrier can be inserted when the panel door is closed.

It is possible to install corresponding surge voltage protectors in the panel, if required.

All switch panels are designed with central locking and double-bit key.

There are additional locking features available using profile cylinders or padlocks, if required.

# Air-Insulated Medium-Voltage Switch Panels 24 kV Type W 24 - 901121



Switch Panel Type W 24 - 901121	Cable panel (WK) Fig. Bild 2,3	Transformer feeder panel (WT) Fig. 11, 12, 13	Measuring panel (WM) Fig. 7, 8, 9, 10	Bus sectionalizer panel (WÜ) Fig. 4	Bus sectionalizer / Measuring panel (WUJW) Fig. 5, 6	Circuit-breaker panel (WL) Fig. 14, 17	Circuit-breaker bus sectionalizer panel (WUL) Fig. 15, 16
Disconnecting switch	*	*	-	-	-		
Switch-disconnector / Circuit breaker	H 22 EA/EK	H 22 SEA	-	H 22 EK/EA/SEA	H 27 EK/EA/SEA	V24 F/KUF	V24 F/KUF
Earthing switch				**			
Current transformer				-			
Voltage transformer				-			-

= optional

- = not possible

\* not possible with current or voltage transformers

\*\* not possible with switch-disconnector H 22 SEA

## Switch Panels Type W 24 - 901121

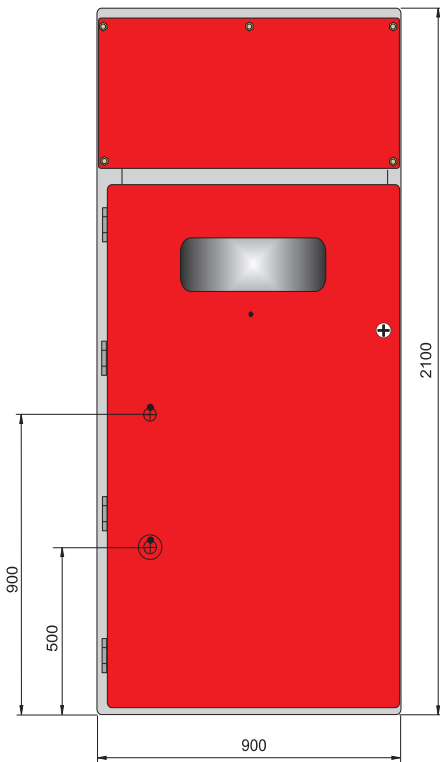


Fig. 1: 24 kV Switch panel

## 24 kV switch panel in compliance with drawing HA 1-071556

- Rated voltage 24 kV
- Rated (operating) current 630 A and 1250 A
- Rated insulation level 125 kV
- Resistance to accidental arcs 16, 20, 25 and 31.5 kA; 1 s

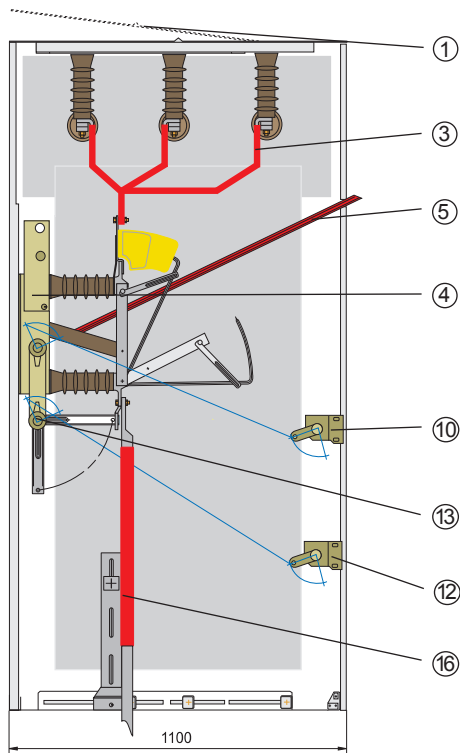


Fig. 2: 24 kV Cable panel with switch-disconnector H 22

- ① Pressure relief plate
- ② Relay box
- ③ Bus terminal
- ④ Switch-disconnector H 22
- ⑤ Insulating protective barrier \*
- ⑥ Switch-disconnector H 27
- ⑦ Current transformer
- ⑧ Voltage transformer
- ⑨ Vakuuc circuit-breaker
- ⑩ Position indicator and actuation of load-break switch
- ⑪ Position indicator and actuation of disconnecting switch
- ⑫ Position indicator and actuation of earthing switch
- ⑬ Earthing switch
- ⑭ Disconnecting switch
- ⑮ HV-HBC fuse
- ⑯ Cable terminal

\* The insulating protective barrier can be inserted with switched off switchgear

## Switch Panels Type W 24 - 901121

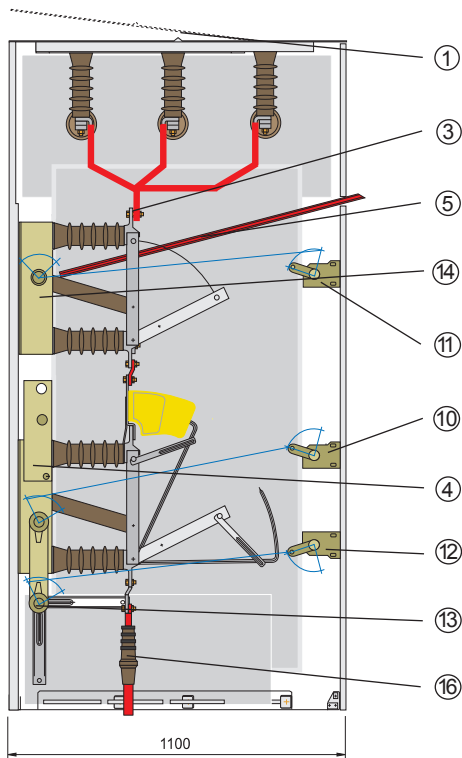


Fig. 3: 24 kV Cable panel with disconnecting switch and switch-disconnector H 22

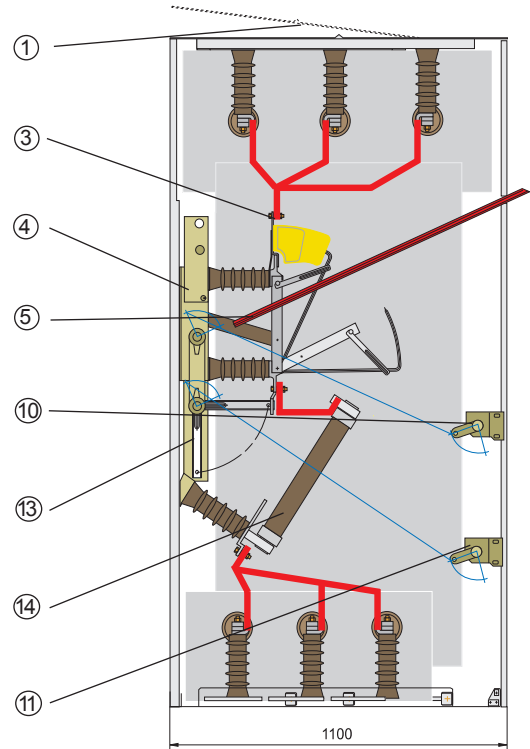


Fig. 4: 24 kV Bus sectionalizer panel with fuse switch-disconnector H 22 SEA

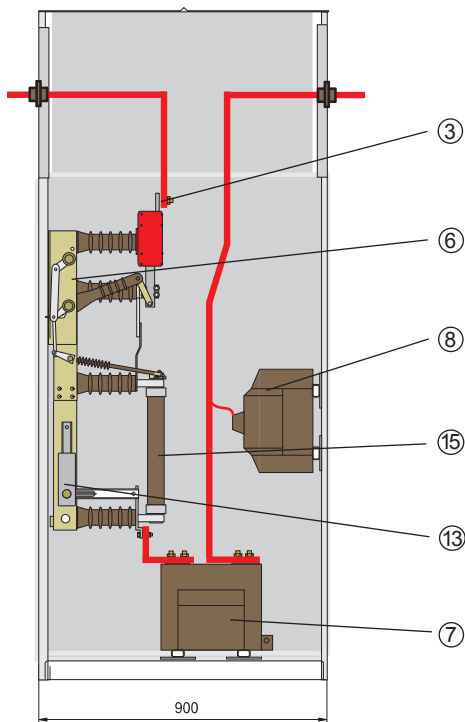


Fig. 5: 24 kV Bus sectionalizer/Measuring panel with fuse switch-disconnector H 27 SEA\*

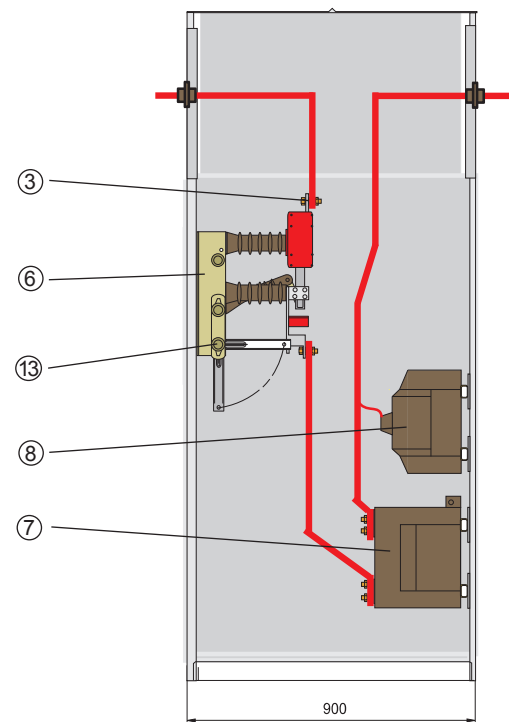


Fig. 6: 24 kV Bus sectionalizer/Measuring panel with switch-disconnector H 27 EK/EA\* (also possible without switch-disconnector)

\* The switchgear device H 27 can also be installed on the right



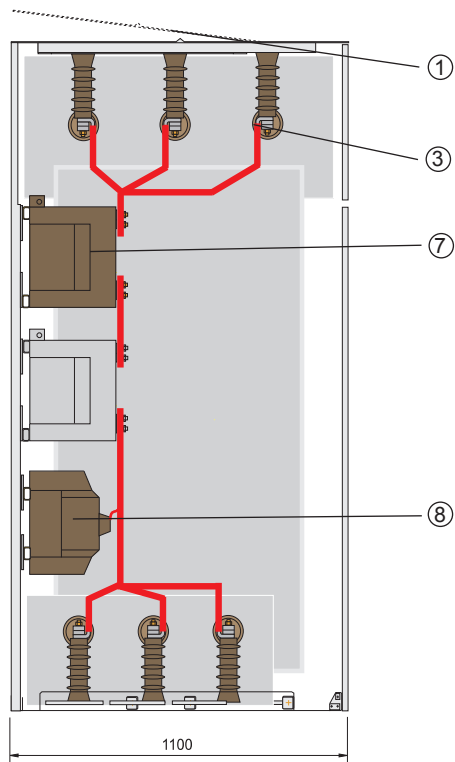


Fig. 7: 24 kV Measuring panel

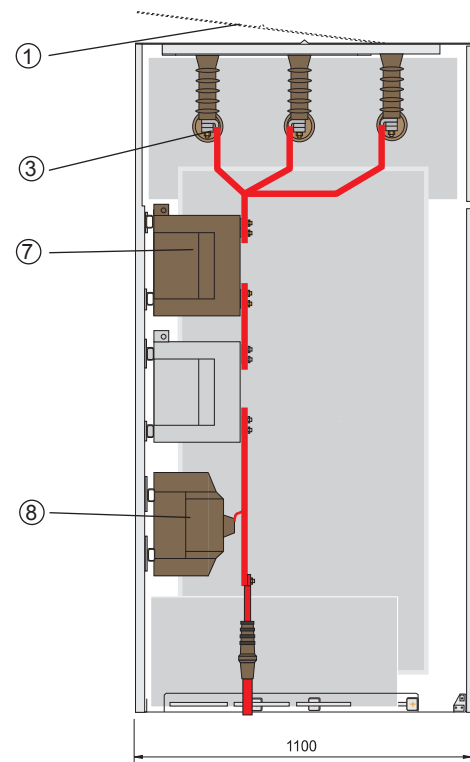


Fig. 8: 24 kV Measuring panel with cable terminal

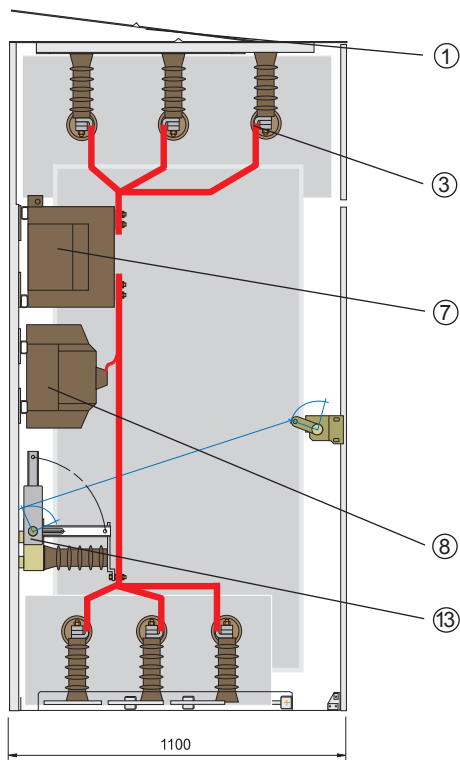


Fig. 9: 24 kV Measuring panel with earthing switch at the bottom

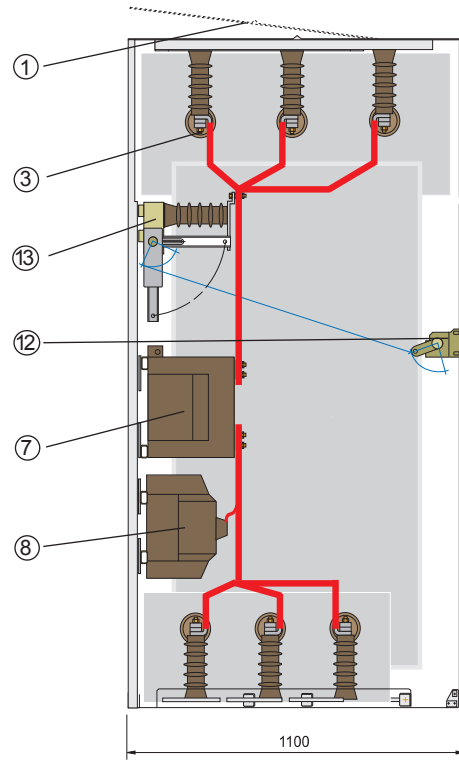


Fig. 10: 24 kV Measuring panel with earthing switch at the top



## Switch Panels Type W 24 - 901121

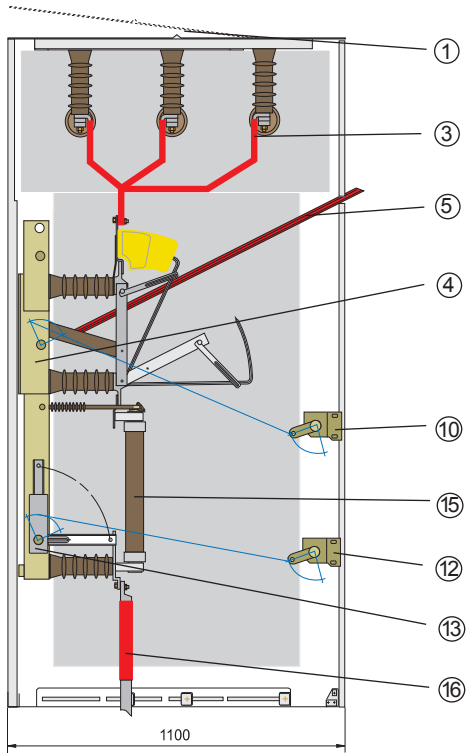


Fig. 11: 24 kV Transformer feeder panel with switch-disconnector H 22 SEA

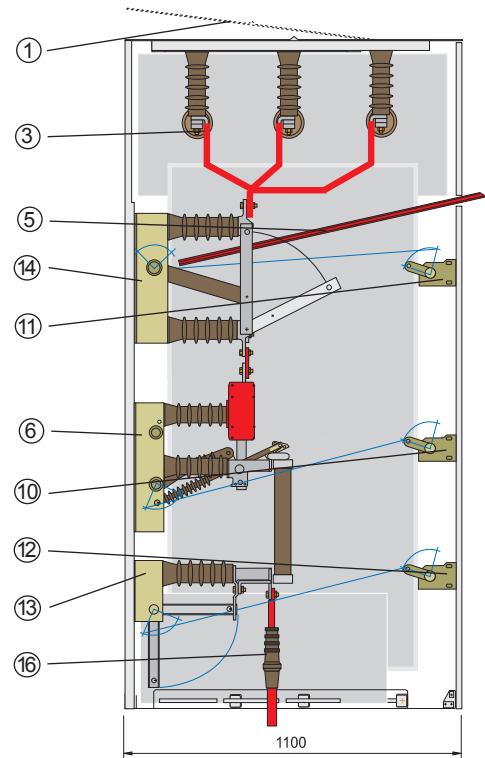


Fig. 12: 24 kV Transformer feeder panel with switch-disconnector H 27 SuT

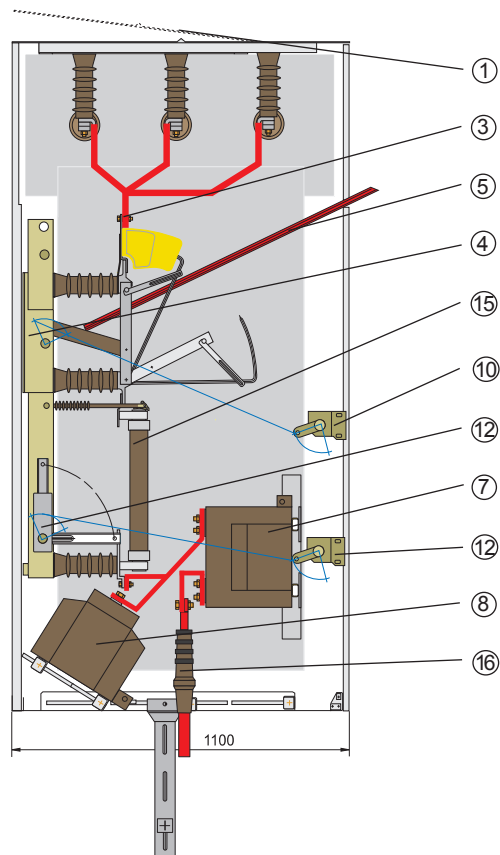


Fig. 13: 24 kV Transformer feeder panel with switch-disconnector H22 SEA as well as current and voltage transformer

## Switch Panels Type WL 24 - 901121

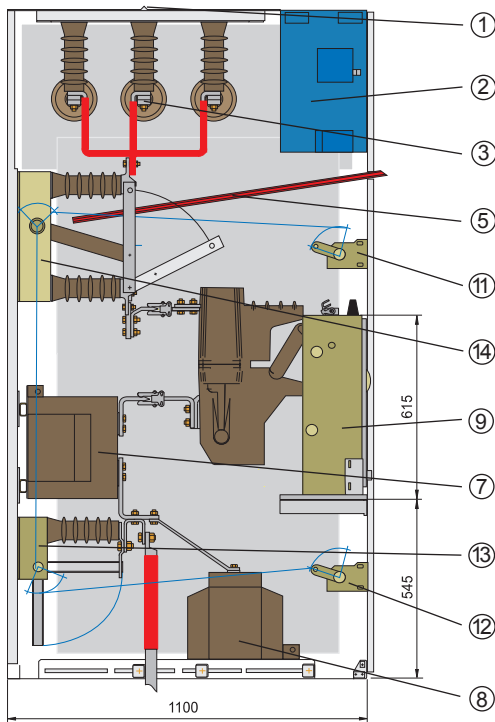


Fig. 14: Circuit-breaker panel in mobile stationary-mounted design

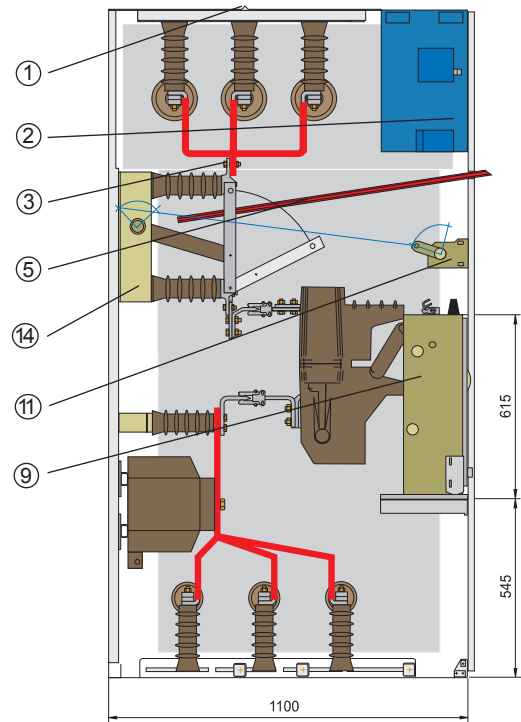


Fig. 15: Circuit-breaker bus sectionalizer panel in mobile stationary-mounted design

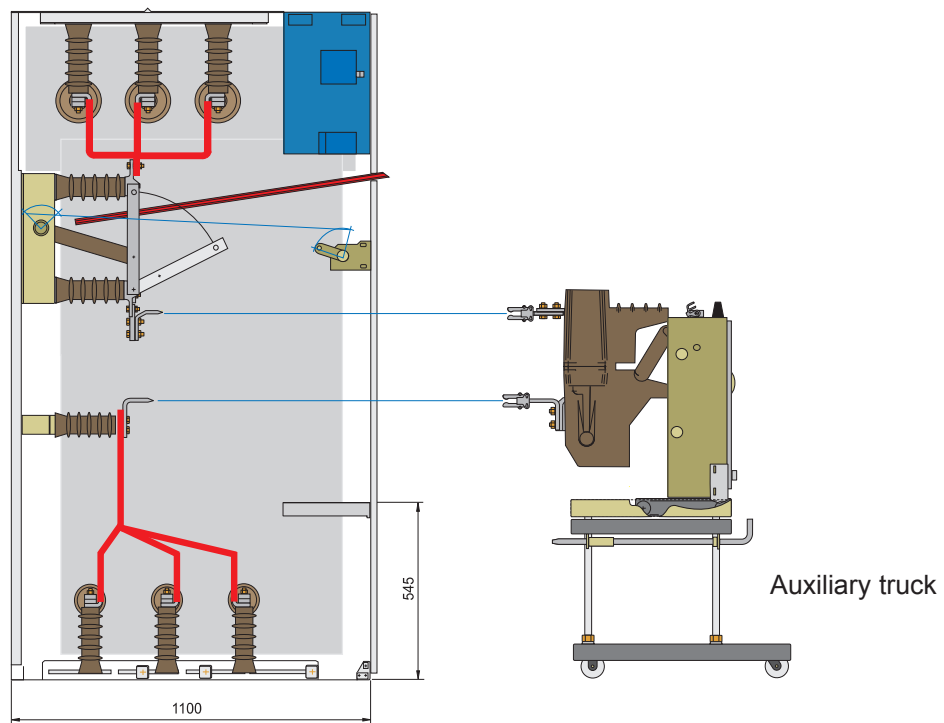


Fig. 16:  
Circuit-breaker bus sectionalizer panel in mobile stationary-mounted design

## Relay Boxes Type W 24 - 901121

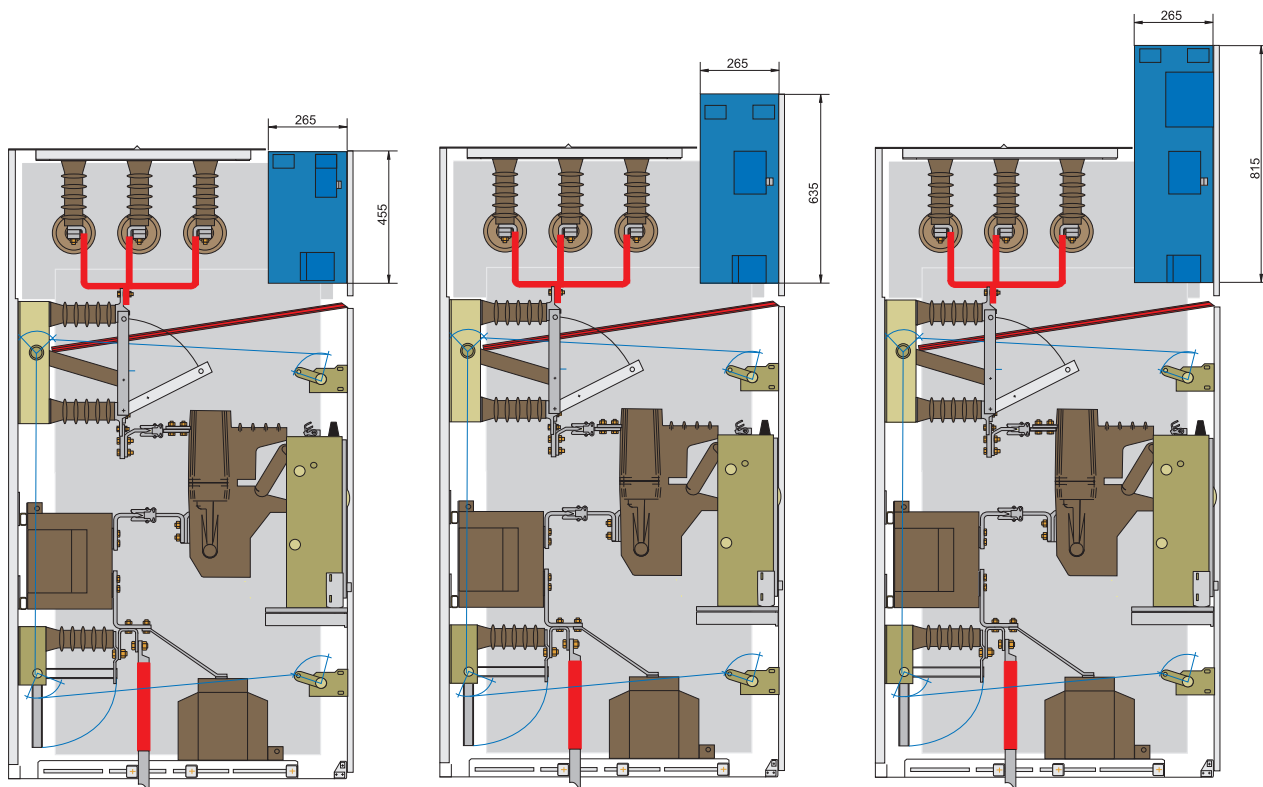


Fig. 17: Circuit-breaker panels with 3 variations of relay boxes

### Insulating protective barrier

The insulated protective barrier is to prevent impermissible approach to live parts and unintentional contact with such parts. This barrier is to be inserted

with closed panel door when work is to be carried out on the switch panel and the system cannot be switched completely dead.

### Auxiliary Equipment

- Insulating protective barrier in compliance with DIN VDE 0682 Part 552
- Panel illumination
- Capacitive voltage testing system in compliance with (E) DIN VDE 0682 Part 415
- Additional locking systems with profile cylinder and lockable operating mechanisms
- Short-circuit indicator
- Floor coverings

### Weights

Type	Designation	Weight approx. kg	Drawing-no.
WK 24-901121-22	Cable panel	245	HA 1 - 071556
WT 24-901121-22	Transformer feeder panel	275	HA 1 - 071556
WÜ 24-901121-22	Bus sectionalizer panel	300	HA 1 - 071556
WM 24-901121	Measuring panel	240	HA 1 - 071556
WÜM 24-901121-27	Bus sectionalizer / Measuring panel	290	HA 1 - 071556
WL 24-901121-V 24	Circuit-breaker panel	350	HA 1 - 071556
WÜL 24-901121-V 24	Circuit-breaker bus sectionalizer panel	330	HA 1 - 071556

**For assembly, commissioning and maintenance always proceed as specified in the appropriate instructions.**

## **Our range of products includes:**

### **Medium-voltage systems**

- Single-bus and duplicate-bus switchgear
- Non-withdrawable, withdrawable, and truck-type units
- Compact switchgear assemblies
- Custom-made models
- Industrial systems

### **Medium-voltage switchgear**

- Indoor switches, disconnectors, and earthing switches (single and triple pole)
- Indoor circuit breakers (vacuum)
- Outdoor switches (low oil content and vacuum)
- High-voltage high-breaking-capacity fuses

### **Low-voltage systems**

- Open-framework design
- Enclosed break devices (up to 6.300 A)
- Cable and fixed-station distribution cabinets

### **Low-voltage switchgear**

- Switch disconnectors
- Switch and fuse blocks
- Low-voltage high-breaking-capacity fuses

### **Driving gear**

- Hand-operated and motor-operated mechanisms
- Indoor and outdoor driving gear

### **Accessories**

- For medium and low voltages
- For station equipment
- Insulators (0.5 kV - 38.5 kV)
- Plastic and glass-reinforced plastic screening

Dimensions, weights , diagrams and descriptions in the list are non-binding. Subject to change without notice.

**switching • electricity • safely**

## **ELEKTROTECHNISCHE WERKE FRITZ DRIESCHER & SÖHNE GMBH**

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