Catalog HA 45.11 · 2007

Switchgear Type 8DJ10 up to 24 kV, Gas-Insulated

Medium-Voltage Switchgear

Power Transmission and Distribution

SIEMENS

Contents

The products and systems described in this catalog are manufactured and sold according to a certified quality and environmental management system (acc. to ISO 9001 and ISO 14001).
(DQS Certificate Reg. No. DQS 003473 QM UM).
The certificate is accepted in all IQNet countries.

Application, Requirements

Features

8DJ10 switchgear is a factory-assembled, type-tested, metal-enclosed switchgear for indoor installation.

Typical uses

8DJ10 switchgear is used for power distribution in substations – even under severe environmental conditions, such as:

- Industrial environments
- Damp, sandy or dusty areas
- Simple outdoor substations

Main uses

- Compact substations
- Compact transformer substations, e. g. for wind power stations
- Garage and vault substations
- Underground and underfloor substations
- Sidewalk substations, e.g. containing switchgear with a very small overall width – in particular the basic versions of schemes 10 and 71–in conurbations
- Substations with control aisle

Technology

- Switchgear design with up to 6 feeders
- Maintenance-free
- Climate-independent
- Partition class: PM (partition of metal)
- Three-pole primary enclosure, metal-enclosed
- Insulating gas SF_6
- Welded switchgear vessel without seals, made of stainless steel, with welded-in bushings for electrical connections and mechanical components
- Three-position switch-disconnector with load-break and make-proof earthing function
- Cable connection for bushings with outside cone
- Connection with cable plugs
  – In ring-main feeders with bolted contact (M16)
  – In transformer feeders with plug-in contact
- Option: Connection with conventional sealing ends
  – For thermoplastic-insulated cables via elbow adapter AKE 20/630 (make Siemens)
  – For paper-insulated mass-impregnated cables via commercially available adapter systems
- Easy installation

Personal safety

- Safe-to-touch and hermetically sealed primary enclosure
- HV HRC fuses and cable sealing ends are only accessible when outgoing feeders are earthed
- Operation only possible when enclosure is closed
- Logical mechanical interlocking
- Capacitive voltage detecting system to verify safe isolation from supply
- Feeder earthing by means of make-proof earthing switches

Security of operation

- Hermetically sealed primary enclosure, independent of environmental effects such as pollution, humidity and small animals, sealed for life:
  – Welded switchgear vessel
  – Welded-in bushings and operating mechanism
- Operating mechanism parts maintenance-free (IEC 60 694/ VDE 0670-1000)
- Operating mechanisms of switching devices located outside the switchgear vessel
- Switchgear interlocking system with logical mechanical interlocks

Cost-efficiency

Extremely low "life-cycle costs" throughout the entire product service life thanks to:

- Maintenance-free concept
- Climatic independence
- Minimum space requirement
- Maximum availability

Standards

see page 13

Designs, typical application

Our product range comprises switchgear consisting of

- Ring-main feeders
- Transformer feeders with HV HRC fuse assemblies

The switchgear is available in two overall heights:

- 1360 mm (with low subframe)
- 1650 mm (with high subframe)

These overall heights cover all areas of application, from compact substations to switchgear rooms with control aisle

Basic design

- Transformer cable connection in upper area
- With logical mechanical interlocks
- With ready-for-service indicator
- With capacitive voltage detecting system at the ring-main feeders

Options

- Capacitive voltage detecting system at the transformer feeders
- Motor operating mechanisms for the three-position switch-disconnectors of the ring-main and transformer feeders
- Auxiliary switch for three-position switch-disconnector and make-proof earthing switch
- Short-circuit indicator with flush-mounted housing for ring-main feeders
- Surge arresters for ring-main feeders
- Shunt releases for transformer feeders
- Secondary equipment for remote operation or remote indication, e.g. with local-remote switch in the case of motor operating mechanisms or "tripping signal" in the case of transformer feeders
- Locking devices
- Closing lock-out
- Mounted cable clamps at the ring-main feeders
- Further options on request

2 ring-main feeders
1 transformer feeder
Scheme 10

3 ring-main feeders
1 transformer feeder
Scheme 71

4 ring-main feeders
2 transformer feeders
Scheme 62

Ring-main/transformer blocks

8DJ10 switchgear in substation with control aisle

Technical Data, Shipping

Electrical data, temperature, filling pressure

Electrical data

Rated voltage U_r	kV	**7.2**	**12**	**15**	**17.5**	**24**
Rated insulation level:						
Rated short-duration power frequency withstand volt. U_d	kV	20	28 [1]	36	38	50
Rated lightning impulse withstand voltage U_p	kV	60	75 [1]	95	95	125
Rated frequency f_r		50/60 Hz →				
Rated normal current I_r						
for ring-main feeders		400 A or 630 A →				
for transformer feeders depending on the HV HRC fuse link		200 A →				
Rated short-time withstand current I_k, 1 s	kA	–	–	–	16	16
	kA	20	20	20	20	20
	kA	25	25	25	25	–
Rated short-time withstand current I_k, 3 s (option)	kA	20	20	20	20	20
Rated peak withstand current I_p	kA	–	–	–	40	40
	kA	50	50	50	50	50
	kA	63	63	63	63	–
Rated short-circuit making current I_{ma}						
for transformer feeders	kA	25	25	25	25	25
for ring-main feeders	kA	–	–	–	40	40
	kA	50	50	50	50	50
	kA	63	63	63	63	63

Temperature, filling pressure

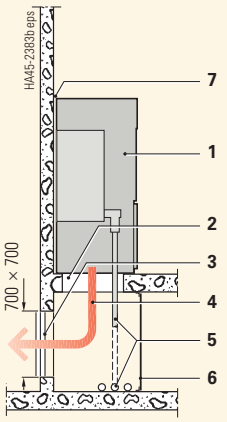
Ambient air temperature T (operating conditions acc. to IEC 62 271-200, Clause 2 or IEC 60 694)	
– Without secondary equipment	– 40 to +70 °C [2] →
– With secondary equipment, Class "Minus 5 indoor"	– 5 to +55 °C [2] →
Pressure values at 20 °C for the insulation:	
Rated filling level p_{re}	1500 hPa (absolute) →
Minimum functional level p_{me}	1300 hPA (absolute) →

1) Option: For a rated short-time withstand current I_k = 20 kA/1 s or I_k = 20 kA/3 s, U_d = 42 kV and U_p = 95 kV are possible according to some national requirements

2) Temperature range, reduced normal currents at ambient air temperatures > + 40 °C

Switchgear installation, transport data

Switchgear installation



1 Switchgear
2 Floor opening into cable duct
3 Expanded metal (not included in the scope of supply)
4 Direction of pressure relief
5 Cable
6 Sheet-metal partition (not included in the scope of supply)
7 Wall distance

Wall-standing arrangement

Direction of pressure relief

Overall height 1360 mm
Downwards

Overall height 1650 mm
Downwards
To the rear (on request)

Transport data

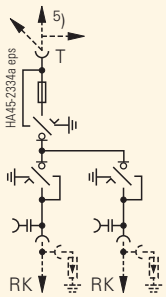
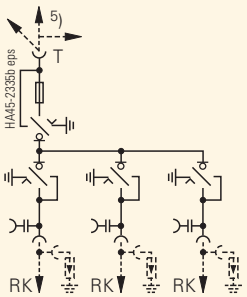
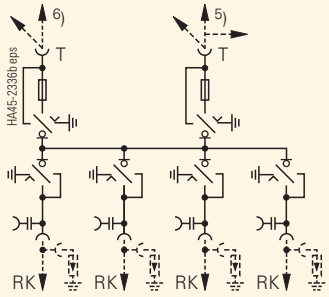
Scheme No.	Version (abbreviations)	Switchgear height	Transport dimensions Width	Height	Depth	Volume	Gross weight [3] approx.
		mm	m	m	m	m^3	kg
Transport within Europe by rail, truck, container Packing with PE protective foil and wooden base							
10	2RK+1T	1360	1.10	1.56	1.10	1.89	300
		1650	1.10	1.85	1.10	2.24	330
71	3RK+1T	1360	1.45	1.56	1.10	2.49	380
		1650	1.45	1.85	1.10	2.95	430
62	4RK+2T	1360	1.80	1.56	1.10	3.09	580
		1650	1.80	1.85	1.10	3.66	660
Transport overseas by seafreight Packing with PE protective foil and seaworthy crate							
10	2RK+1T	1360	1.10	2.0	1.15	2.53	350
		1650	1.10	2.0	1.15	2.53	380
71	3RK+1T	1360	1.45	2.0	1.15	3.34	460
		1650	1.45	2.0	1.15	3.34	510
62	4RK+2T	1360	1.80	2.0	1.15	4.14	680
		1650	1.80	2.0	1.15	4.14	760

3) Weight depending on the relevant equipment, e.g. motor operating mechanism

Abbreviations:

RK = Ring-main feeder
T = Transformer feeder

Product range overview, schemes

Scheme	Overall dimensions			Net weight [1] approx. kg
	Width mm	Depth mm	Height mm	
Block types, consisting of ring-main and transformer feeders				
Scheme 10 	2 ring-main feeders and 1 transformer feeder (Abbreviations 2RK+1T)			
	710	775	1360 1650	270 300
Scheme 71 	3 ring-main feeders and 1 transformer feeder (Abbreviations 3RK+1T)			
	1060	775	1360 1650	340 390
Scheme 62 	4 ring-main feeders and 2 transformer feeders (Abbreviations 4RK+2T)			
	1410	775	1360 1650	500 580

1) Weight depending on the relevant equipment, e.g. motor operating mechanism

5) Cable routing optionally:
- To the rear (standard)
- Upwards (option)
- To the right (option): Additional distance of 210 mm required for cable routing/cover

6) Cable routing optionally:
- To the rear (standard)
- Upwards (option)

Abbreviations for both tables:

RK = Ring-main feeder
T = Transformer feeder

Equipment features of panels

- • Basic equipment
- o Additional equipment (option), further additional equipment on request
- x Not applicable
- – Not available

Equipment	Ring-main feeders RK panels	Transformer feeders T panels
Manual operating mechanism for three-position switch-disconnector:		
– As spring-operated mechanism	•	–
– As spring-operat./stored-energy mech.	–	•
Motor operating mechanism for three-position switch-disconnector	o	o
Interlock of cable compartment cover for ring-main feeders	•	x
Interlock of HV HRC fuse compartment and transformer cable compartment	x	•
Cable bracket [2] in ring-main feeders, cable routing downwards	•	x
Cable connection in transformer feeder (cable fixing by customer, supplied without cable bracket) for cable routing		
– To the rear (standard) for cable elbow plugs or	x	•
– Upwards for straight cable plugs or	x	or o
– To the right for cable elbow plugs	x	or o [3]
Low-voltage terminals in the operating mechanism (option for secondary equipment)	•	•
Shunt release	–	o
Auxiliary switch for		
– Switch-disconnector CLOSED/OPEN: 1 NO + 2 NC	o	o
– EARTHING CLOSED/OPEN: 1 NO + 1 NC	o	o
Locking device for three-position switch-disconnector	o	o
Short-circuit or earth-fault indicator		
– Wiring at the indicator (standard)	o	–
– Wiring to terminal (option)	o	–
Closing lock-out for three-position switch-disconnector	o	–
Double cable connection for		
– Overall height of switchgear 1360 mm	o	x
– Overall height of switchgear 1650 mm	o	x
Surge arrester for		
– Overall height of switchgear 1360 mm	o [4]	x
– Overall height of switchgear 1650 mm	o	x
Mounted cable clamps	o	x

2) For overall height of switchgear 1360 mm: Cable bracket below the feeder

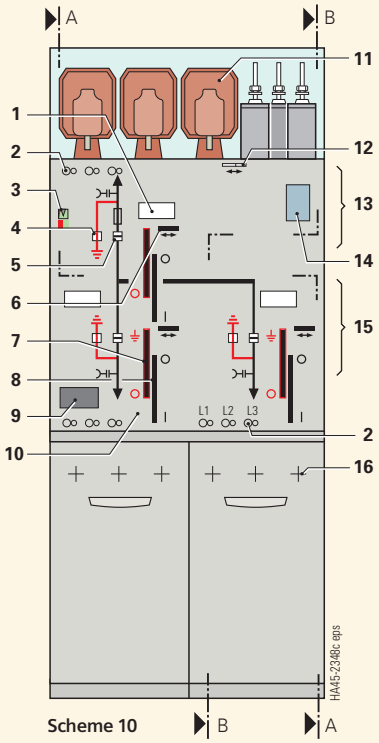
3) For scheme 62 only possible for the right-hand feeder

4) Only possible for
- –105 mm deeper cable compartment cover and
- –300 mm deeper cable compartment cover
- –Surge arrester: Type RDA with RICS (Raychem) not possible for 1360 mm

Design

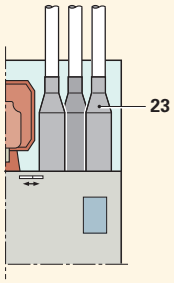
Panel design (example)

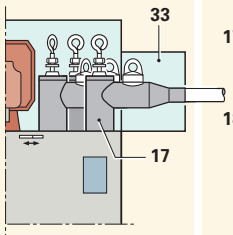
Ring-main/transformer block



Scheme 10

1 Feeder designation label
2 Sockets for voltage detecting system
3 Ready-for-service indicator
4 Switch position indicator for earthing function "OPEN – EARTHED"
5 Switch position indicator for load-break function "CLOSED – OPEN"
6 Locking device (option for three-position switch-disconnector)
7 Manual operation for the mechanism of the earthing function
8 Manual operation for the mechanism of the load-break function
9 Short-circuit/earth-fault indicator (option)
10 Interlock of the cable compartment cover



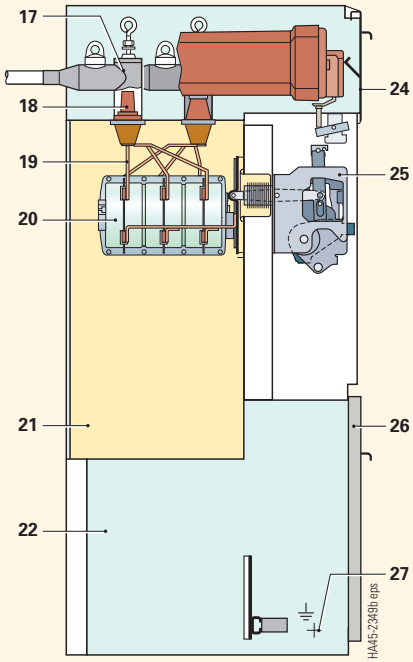


Personal safety

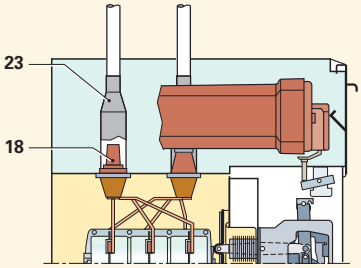
All feeder-related covers can only be opened if the associated three-position switch-disconnector has been switched to the "EARTHED" position.

Transformer feeder

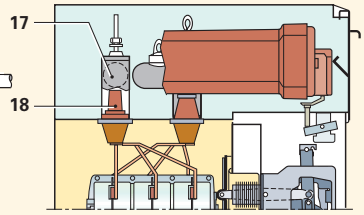
Section A-A



Standard
Cable connection for cable elbow plugs with plug-in contact, cable routing to the rear



Option
Cable connection for straight cable plugs with plug-in contact, cable routing upwards

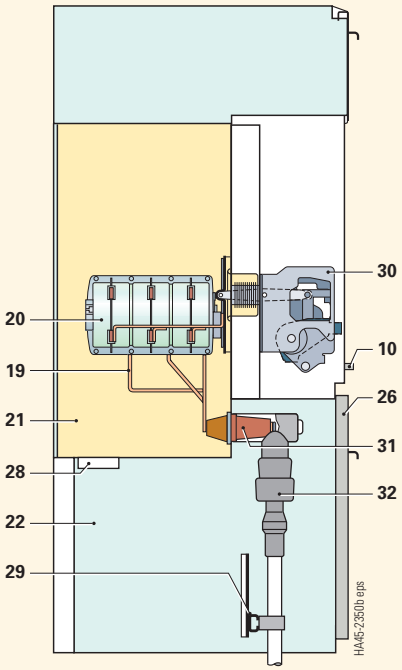


Option (only for schemes 10 and 71)
Cable connection for cable elbow plugs with plug-in contact, cable routing to the right

Design options for the transformer cable connection, see table on page 9 (cable fixing always by customer)

Ring-main feeder

Section B-B



Cable connection with bolted contact (M16) optionally for:
– Cable T-plugs or cable elbow plugs
– Elbow adapter AKE 20/630 (make Siemens) for conventional cable sealing ends

11 HV HRC fuse assembly, cover removed
12 Interlock for HV HRC fuse assembly
13 Mimic diagram for transformer feeder
14 Rating and type plate
15 Mimic diagram for ring-main feeder
16 Arrangement of cable connections
17 Cable elbow plug with plug-in contact
18 Bushing as interface type "A" for cable plugs with plug-in contact
19 Connecting bar to cable connection
20 Three-position switch-disconnector
21 Switchgear vessel, filled with gas
22 Cable compartment
23 Straight cable plug with plug-in contact
24 Cover of the HV HRC fuse compartment and of the transformer cable compartment
25 Spring-operated/stored-energy mechanism
26 Cable compartment cover
27 M12 earthing connection
28 Pressure relief device
29 Cable bracket in ring-main feeder
30 Spring-operated mechanism
31 Bushing as interface type "C" for cable plugs with bolted contact (M16)
32 Elbow adapter AKE 20/630 for conventional cable sealing end (bolted contact M16)
33 Cover in transformer feeder for cable routing to the right

Three-position switch-disconnector, operating mechanisms

Three-position switch-disconnector

The switching device used is the proven three-position switch-disconnector.

Functions

- Load-break function
- Earthing function with short-circuit making capacity
- Switch positions CLOSED – OPEN – EARTHED

Operating mechanisms

The three-position switch-disconnector is operated from the switchgear front via

Detachable lever mechanism

- Spring-operated mechanism
  – With "spring-operated CLOSED" and "spring-operated OPEN" for installation in ring-main feeders
- Spring-operated/stored-energy mechanism
  – With "spring-operated CLOSED"and "spring-operated OPEN" for installation in transformer feeders
  – With an additional energy store for the function "stored-energy OPEN" after tripping by the HV HRC fuse (striker pin tripping) or by the shunt release

Options

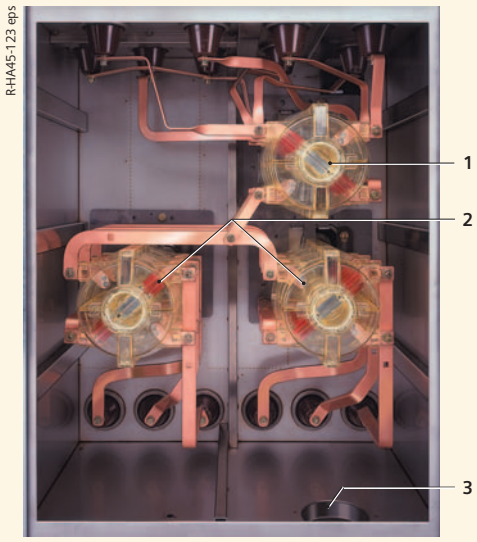
- Motor operating mechanism for switch-disconnector
- Locking devices
- Auxiliary switch for three-position switch-disconnector and make-proof earthing switch
- Shunt release for transformer feeders
- Closing lock-out for ring-main feeders
- Different operating levers [1] for the operating mechanisms of the switch-disconnector and the make-proof earthing switch

1) According to VDN * / VDEW ** recommendation

* Association of German Network Operators VDN e.V. at the VDEW in Germany (as of 2003)

** Association of German Power Stations VDEW e.V.

Three-position switch-disconnector



Three-position switch-disconnector

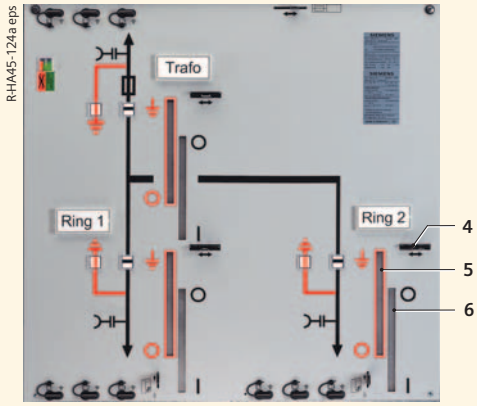
Rear view into the switchgear vessel of a ring-main/transformer block, scheme 10

1 Three-position switch-disconnector in the transformer feeder

2 Three-position switch-disconnector in the ring-main feeders

3 Pressure relief device

Operating mechanisms



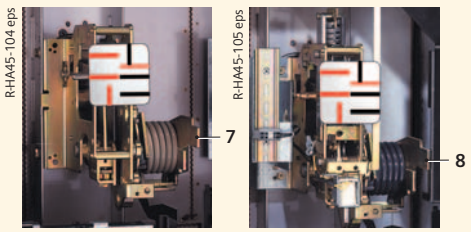
Control board for detachable lever mechanisms (standard)

Example:
Ring-main/transformer block, scheme 10

4 Locking device (option) for the detachable lever mechanism

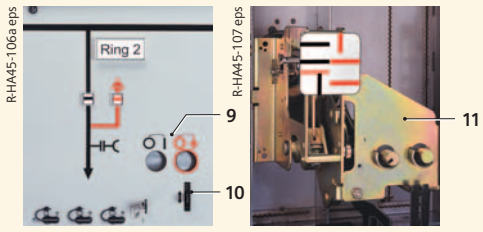
5 Detachable lever mechanism for the earthing function

6 Detachable lever mechanism for the load-break function



7 Detachable lever mechanism for the ring-main feeder

8 Detachable lever mechanism for the transformer feeder



On request:
Control board for rotary operating mechanisms

Example:
Ring-main feeder

9 Symbols for the actuating direction of the rotary operating mechanism

10 Locking device for the rotary operating mechanism

11 Rotary operating mechanism

Components

HV HRC fuse assembly, secondary equipment

HV HRC fuse assembly

The HV HRC fuse boxes are single-phase insulated and located above the transformer feeder outside the switchgear vessel.

Standards (see page 13)

HV HRC fuse links with striker pin in "medium" version according to

- IEC 60 282-1
- VDE 0670 Parts 4 and 402
- DIN 43 625
  main dimensions

Features

- Access to the HV HRC fuse compartment and replacement of HV HRC fuses is only possible if the transformer feeder has been isolated and earthed
- Requirements fulfilled as HV alternating current switch – fuse combination
- Selection of HV HRC fuses for transformers
- Thermal protection system; it protects the switchgear against the effects of an incorrectly inserted fuse link
- Thermal striker tripping when using an appropriate HV HRC fuse link, e.g. make Siemens, type 3GD1
- HV HRC fuses are easy to replace

Secondary equipment (option)

Examples:

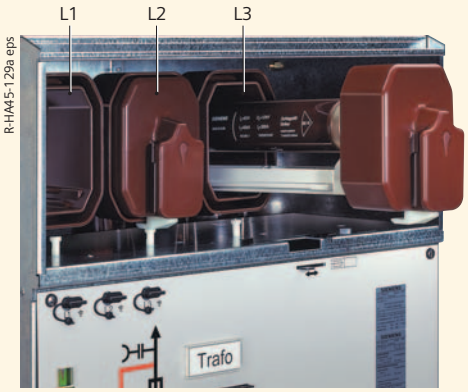
- Auxiliary switches
- Motor operating mechanisms
- Shunt releases

Wiring

Auxiliary switches, motor operating mechanisms or shunt releases are wired to terminal strips. These are feeder related and located next to the operating mechanism module of the feeder concerned.

Customer-side cable routing is done from the side, if required from the rear to the terminal strip arranged at the operating mechanism module.

HV HRC fuse compartment



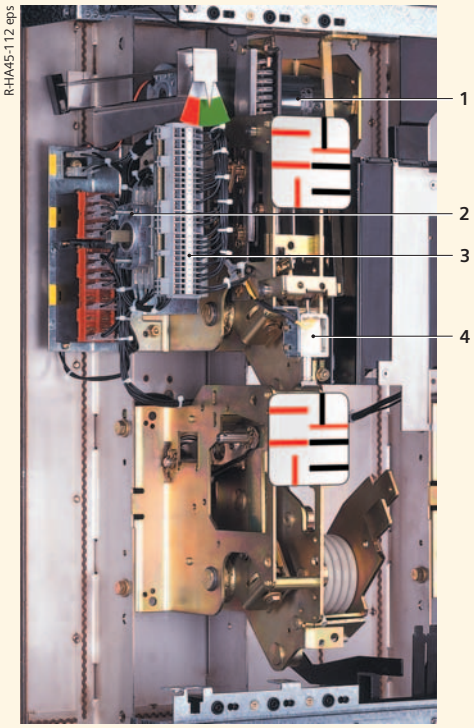
HV HRC fuse compartment with cable compartment cover removed

Phase L1:
HV HRC fuse box with
HV HRC fuse slide removed

Phase L2:
HV HRC fuse box closed

Phase L3:
Replacement of HV HRC fuses

Secondary equipment (option)



Auxiliary switch, motor operating mechanism and shunt release

Operating mechanism components at the spring-operated/stored-energy mechanism of a transformer feeder:

1 Motor operating mechanism
2 Auxiliary switch
3 Terminal strip
4 Shunt release

Cable connection

- Bushings according to EN 50 181/DIN EN 50 181 [1] with outside cone
- Access to the cable compartment only if the feeder has been isolated and earthed

Ring-main connection

- With bolted contact (M16) as interface type "C" according to EN 50 181/DIN EN 50 181
- Cable connection at one level
- For thermoplastic-insulated cables
- For paper-insulated mass-impregnated cables with adapter systems
- For conventional cable sealing ends via elbow adapters AKE 20/630 (make Siemens)
- For cable T-plugs or cable elbow plugs with bolted contact
- For connection cross-sections up to 300 mm^2 (standard)
- Cable routing downwards, cable connection at front
- For rated normal currents of 400 A or 630 A

Options

- Suitable for the connection of surge arresters
- Short-circuit/earth-fault indicator
- Mounted cable clamps
- Double cable connection with corresponding cable plugs

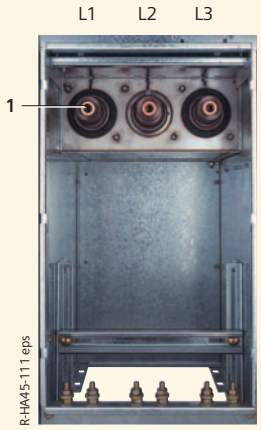
Transformer cable connection

- With plug-in contact as interface type "A" according to EN 50 181/DIN EN 50 181
- For thermoplastic-insulated cables
- For cable elbow plugs (standard) or straight cable plugs with plug-in contact
- For connection cross-sections up to 120 mm^2
- For rated normal currents of 200 A

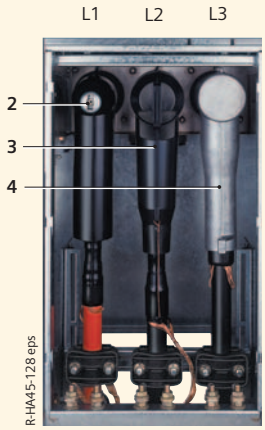
Option

- Cable routing upwards or to the right

Cable connection (examples)



Cable compartment, as delivered (front view)



Cable plugs with bolted contact (M16)

Cable connections in ring-main feeder

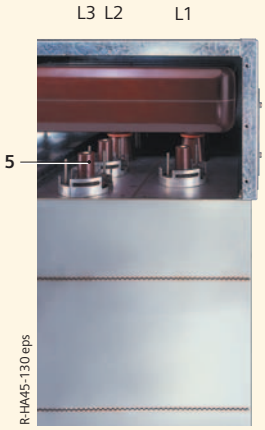
1 Prepared for cable plugs with bolted contact (M16)

2 Phase L1:
Make: Euromold, type K400 LB as cable elbow plug

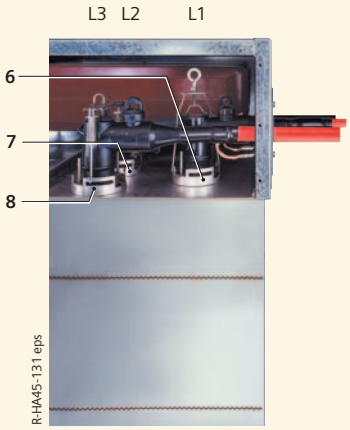
3 Phase L2:
Make: Euromold, type K400 TB as cable T-plug

4 Phase L3:
Make: Euromold, type AGT 20/630 as cable T-plug

Option:
Mounted cable clamps



Cable connection, as delivered (side view)



Cable elbow plug with cable routing to the rear

Cable connections in transformer feeder

5 Prepared for cable plugs with plug-in contact

6 Phase L1:
Make: Euromold, type K158 LR

7 Phase L2:
Make: nkt cables, type EASW 20/250

8 Phase L3:
Make: Cooper, type DE 250-R-C

Cable routing to the rear, cable fixing by customer

Transformer cable connection for cable plugs
with plug-in contact as interface type "A"

Arrangement of connections	Cable routing	Cable plug version
In upper area, beside the HV HRC fuse assembly	To the rear (standard)	Cable elbow plug with plug-in contact for all schemes
	To the right (option) (observe lateral distance of 210 mm)	Cable elbow plug with plug-in contact – For schemes 10 and 71 – For scheme 62: Only possible for the right-hand transformer feeder
	Upwards (option)	Straight cable plug with plug-in contact for all schemes

1) Standard EN 50 181/DIN EN 50 181: "Plug-in bushings above 1 kV up to 36 kV and from 250 A to 1.25 kA for equipment other than liquid-filled transformers."

Cable plugs, cable sealing ends and cable clamps are not included in the scope of supply.

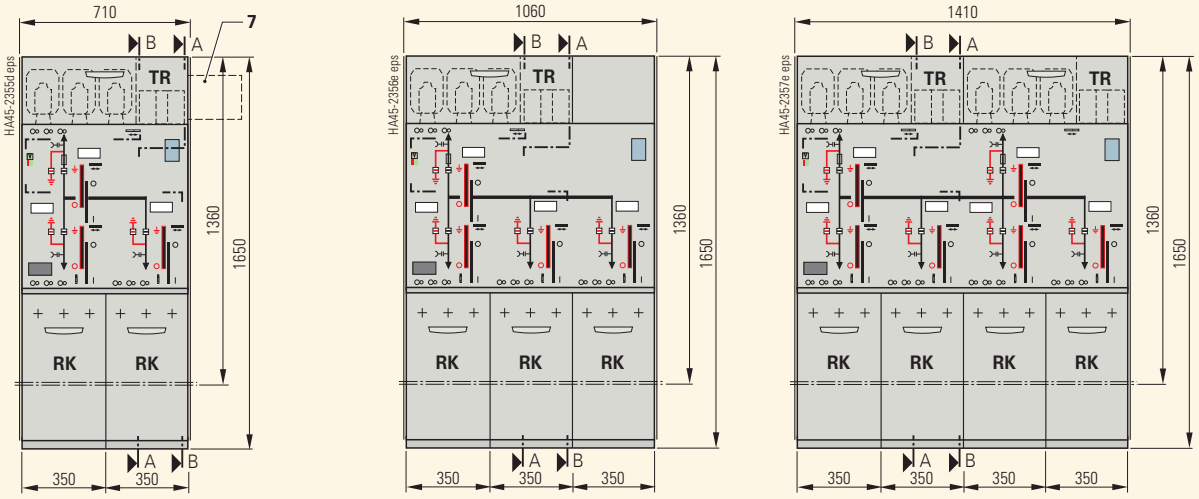
Dimensions

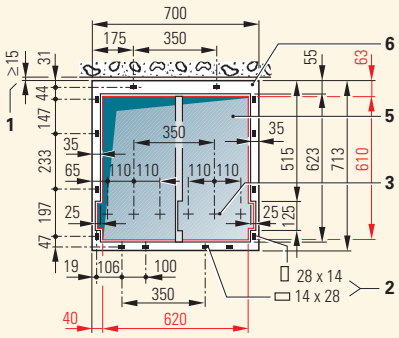
Switchgear, floor openings (dimensions in red) and fixing points

Block versions, consisting of ring-main feeders and transformer feeders · optionally in 2 overall heights

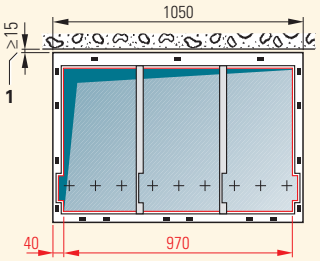
Overall height of switchgear 1360 mm
There are recesses available on the switchgear side. The recesses provided in the floor opening for cable plugs and, if applicable, surge arresters have to be observed by the customer, depending on the make and type of the cable plug / surge arrester.

For sections A-A and B-B see page 11.



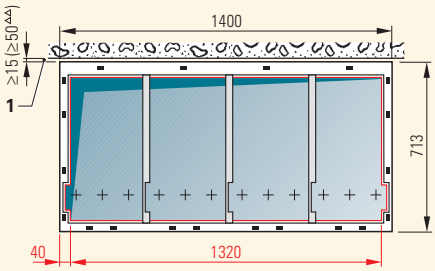


Floor openings and fixing points
Scheme 10



For missing dimensions see scheme 10

Floor openings and fixing points
Scheme 71



For missing dimensions see scheme 10

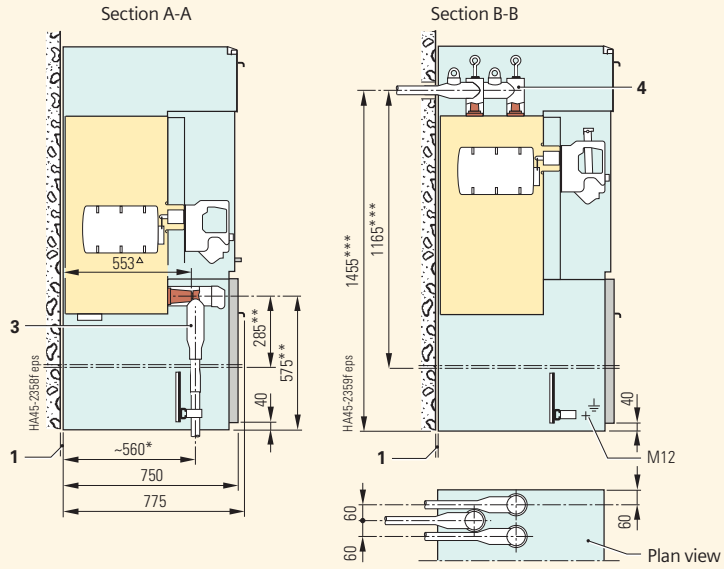
Floor openings and fixing points
Scheme 62

1 Wall distance
2 Fixing points
3 Position of the incoming cables in the ring-main feeder
5 Floor opening for high-voltage cables
6 Fixing frame (base) of the switchgear
7 For cable routing for transformer feeder T: 210 mm required additionally to the switchgear width

△△ Wall distance for scheme 62:
Standard: ≥ 15 mm
Optional design according to IEC 62 271-200 with internal arc classification IAC A FL: ≥ 50 mm

Sections, pressure absorber system

Sections of the block versions from page 10



Ring-main feeder RK

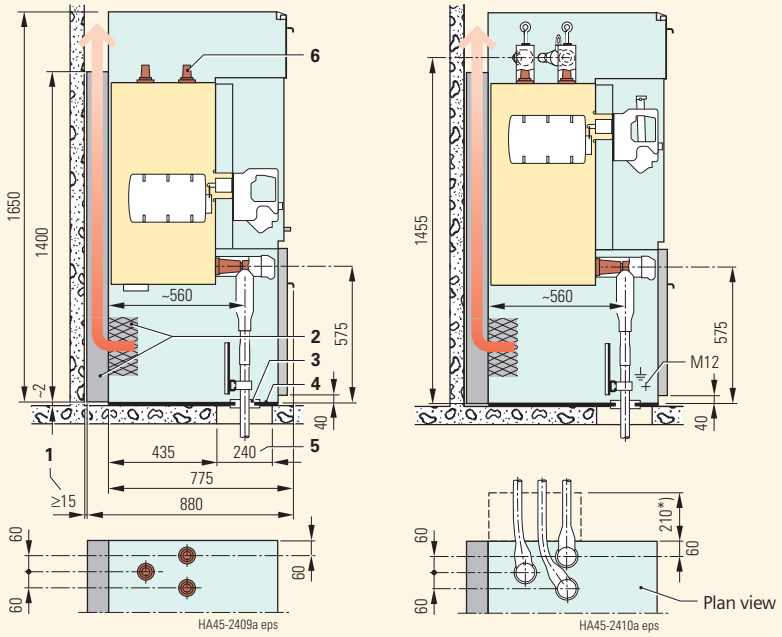
Transformer feeder T

1 Wall distance
3 Position of the incoming cables in the ring-main feeder
4 Position of the incoming cables to the rear in the transformer feeder (standard)

* Depending on the type of cable plug
** Dimensions depending on the overall heights of the switchgear 1360 and 1650 mm
*** Dimensions depending on the overall heights of the switchgear 1360 and 1650 mm, slight deviations are possible due to the various makes of cable elbow plugs
△ Dimension for bushing as interface type "C" with bolted contact (M16)

The cables and cable plugs shown here are not included in the scope of supply.

Pressure absorber system (option)



Switchgear arrangement
Overall height 1650 mm

Ring-main feeder RK:
Cable routing downwards

Transformer feeder T:
Cable routing to the right

* Additionally 210 mm for cable routing/cover to the right

Pressure absorber system (option)

- Maintenance-free
- For all schemes
- For rated short-time withstand current $I_k \leq 16$ kA, with IAC (internal arc classification, see page 14)
- With 105 mm deep pressure relief duct for pressure relief directed upwards
- For overall height of switchgear 1650 mm
- For wall-standing arrangement
- Cable routing in transformer feeder (T), see page 12
- Weight approx. 110 kg

Sections of the pressure absorber system

1 Wall distance
2 Pressure absorber system with rear pressure relief duct, relief directed upwards
3 Cable bushing
4 Divided floor cover for cable entry for local installation
5 Floor opening for the cable feeder
6 Bushing for transformer feeder

Dimensions

Pressure absorber system (option)

(Continued from page 11)

Routing of transformer cables

Scheme 10, 71

– Upwards [1]
– To the rear [2]
– To the right [2]

Routing of the 1st transformer cable (left)

Scheme 62

– Upwards [1]
– To the rear [2]

Routing of the 2nd transformer cable (right)

Scheme 62

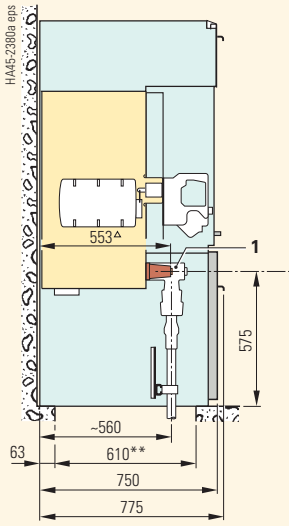
– Upwards [1]
– To the rear [2]
– To the right [2]

1) For straight cable plugs

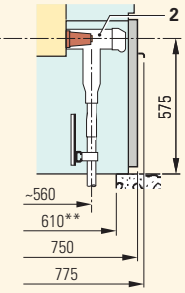
2) For cable elbow plugs

Cable connection examples in ring-main feeders

Examples for an overall height of 1650 mm



Standard cable compartment cover

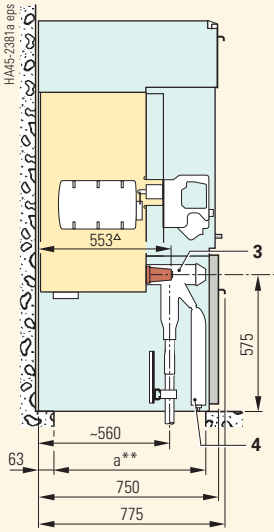


Standard cable compartment cover

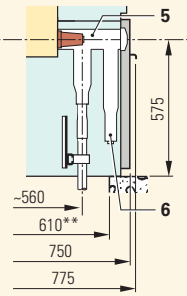
Single cable connection

1 Elbow adapter, make: Siemens, type AKE 20/630 with conventional cable sealing end, make: Lovink, type IAE 20

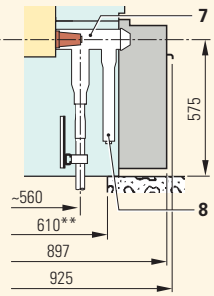
2 Cable T-plug, make: Euromold, type (K) 400 TB/TBS



Standard cable compartment cover



Standard cable compartment cover



150 mm deeper cable compartment cover

Cable connection with surge arresters

3 Cable plug, make: Tyco Electronics Raychem, type RICS 5139

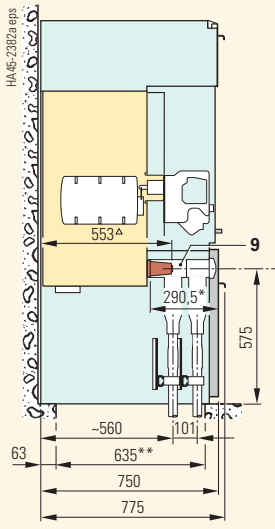
4 Surge arrester [1], types up to RDA21 or RDA24

5 Cable plug, make: nkt cables, type CB 24-630

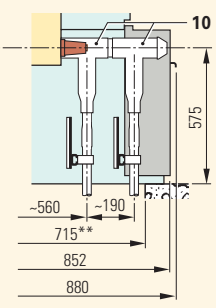
6 Surge arrester, make: nkt cables, type CSA 24-5

7 Cable plug, make: Euromold, type (K) 400 TB/TBS

8 Surge arrester, e.g. make: Euromold, type 400 Pb or similar types



Standard cable compartment cover



105 mm deeper cable compartment cover

Double cable connection

9 Cable T-plug, make: nkt cables, type CB 24-630 and CC 24-630

10 Cable T-plug, make: Südkabel, 2 x type SET (12/24) with coupling insert KU 23.2

Footnotes for all dimension drawings

* Max. mounting space for cable and/or surge arrester

** Depth of floor opening

△ Dimension for bushing with bolted contact (M16)

1) Make: Tyco Electronics Raychem

Dimension a

– 610 mm up to type RDA21
– 635 mm for type RDA24

Standards, specifications, guidelines

Overview of standards (May 2007)

		IEC standard	VDE standard	EN standard
Switchgear	8DJ10	IEC 60 694	VDE 0670-1000	EN 60 694
		IEC 62 271-200	VDE 0671-200	EN 62 271-200
Switching devices	Circuit-breaker	IEC 62 271-100	VDE 0671-100	EN 62 271-100
	Disconnector and earthing switch	IEC 62 271-102	VDE 0671-102	EN 62 271-102
	Switch-disconnector	IEC 60 265-1	VDE 0670-301	EN 60 265-1
	Switch-disconnector / fuse combination	IEC 62 271-105	VDE 0671-105	EN 62 271-105
	HV HRC fuses	IEC 60 282-1	VDE 0670-4	EN 60 282
	Voltage detecting systems	IEC 61 243-5	VDE 0682-415	EN 61 243-5
Degree of protection	–	IEC 60 529	VDE 0470-1	EN 60 529
Insulation	–	IEC 60 071	VDE 0111	EN 60 071
Instrument tansformers	Current transformers	IEC 60 044-1	VDE 0414-1	EN 60 044-1
	Voltage transformers	IEC 60 044-2	VDE 0414-2	EN 60 044-2
	Combined transformer [1]	IEC 60 044-3	VDE 0414-5	EN 60 044-3
Installation	–	IEC 61 936-1	VDE 0101	–

1) Only for switchgear type 8DH10

Standards

The 8DJ10 switchgear complies with the relevant standards and specifications applicable at the time of type tests.

In accordance with the harmonization agreement reached by the countries of the European Community, their national specifications conform to the IEC standard.

Dielectric strength

See also Catalog HA 40.1 **"Standards".**

Terms

"Make-proof earthing switches" are earthing switches with short-circuit making capacity according to IEC 62 271-102/ VDE 0671-102.

Type of service location

8DJ10 switchgear can be used as indoor installations in accordance with IEC 61 936 (Power installations exceeding 1 kV AC) and VDE 0101:

- Outside lockable electrical service locations at places which are not accessible to the public. Enclosures of switchgear can only be removed with tools.
- Inside lockable electrical service locations. A lockable electrical service location is a place outdoors or indoors that is reserved exclusively for housing electrical equipment and which is kept under lock and key. Access is restricted to authorized personnel and persons who have been properly instructed in electrical engineering. Untrained or unskilled persons may only enter under the supervision of authorized personnel or properly instructed persons.

Internal arc classification (option)

The possibility of faults in gas-insulated switchgear type 8DJ10 is improbable and a mere fraction of that typical of earlier switchgear types, due to:

- Use of gas-filled switchgear compartments
- Use of suitable switching devices such as three-position switches with make-proof earthing switch
- Logical mechanical interlocks
- Use of ring-core current transformers (option)

Optionally, switchgear type 8DJ10 can be designed with internal arc classification:

- Internal arc classification **IAC**
- Type of accessibility **A** (for authorized personnel only)
- Accessible sides
  – Side **F** (front)
  – Side **L** (lateral)
  – On request: Side **R** (rear)
- Arc test current up to 21 kA /1 s, switchgear with pressure absorber: Up to 16kA/1 s

Climate and environmental influences

8DJ10 switchgear is completely enclosed and insensitive to climatic influences.

- Climatic tests fulfilled in accordance with IEC 60 932 (report)
- All medium-voltage devices (except for HV HRC fuses) are installed in a gas-tight, welded stainless-steel switchgear vessel which is filled with SF_6 gas
- Live parts outside the switchgear vessel are provided with single-pole enclosure
- At no point can creepage currents flow from high-voltage potentials to earth
- Operating mechanism parts which are functionally important are made of corrosion-proof materials
- Bearings in operating mechanisms are designed as dry-type bearings and do not require lubrication
- Suitable instrument transformer designs

Standards

Classification

Classification of the 8DJ10 switchgear according to IEC 62 271-200

Design and construction

Partition class	PM (partition of metal)
Loss of service continuity category [1] Switchgear – With HV HRC fuses – Without HV HRC fuses (RK, T)	 LSC 2A LSC 2B
Accessibility to compartments (enclosure) – Busbar compartment – Switching-device compartment – Cable compartment – Switchgear without HV HRC fuses – Switchgear with HV HRC fuses (T...)	Access option – Non-accessible – Non-accessible – Interlock-controlled – Interlock-controlled

Internal arc classification (option)

Designation of internal arc classification IAC Class IAC for – Wall-standing arrangement (standard)	Rated voltage 7.2 kV to 24 kV IAC A FL 21 kA, 1 s
Type of accessibility A – F – L	Switchgear in closed electrical service location, access "for authorized personnel only" (according to IEC 62 271-200) Front Lateral
Arc test current [1]	Up to 21 kA
Test duration	1 s

1) The loss of service continuity category is always referred to the complete switchgear, i.e. the panel with the lowest category defines the loss of service continuity category of the complete switchgear.

2) 8DJ10 switchgear with pressure absorber:
Arc test current up to 16 kA,
for overall height of switchgear 1650 mm.

Notes

If not stated otherwise on the individual pages of this catalog, we reserve the right to include modifications, especially regarding the stated values, dimensions and weights.

Drawings are not binding.

All product designations used are trademarks or product names of Siemens AG or other suppliers.

If not stated otherwise, all dimensions in this catalog are given in mm.

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