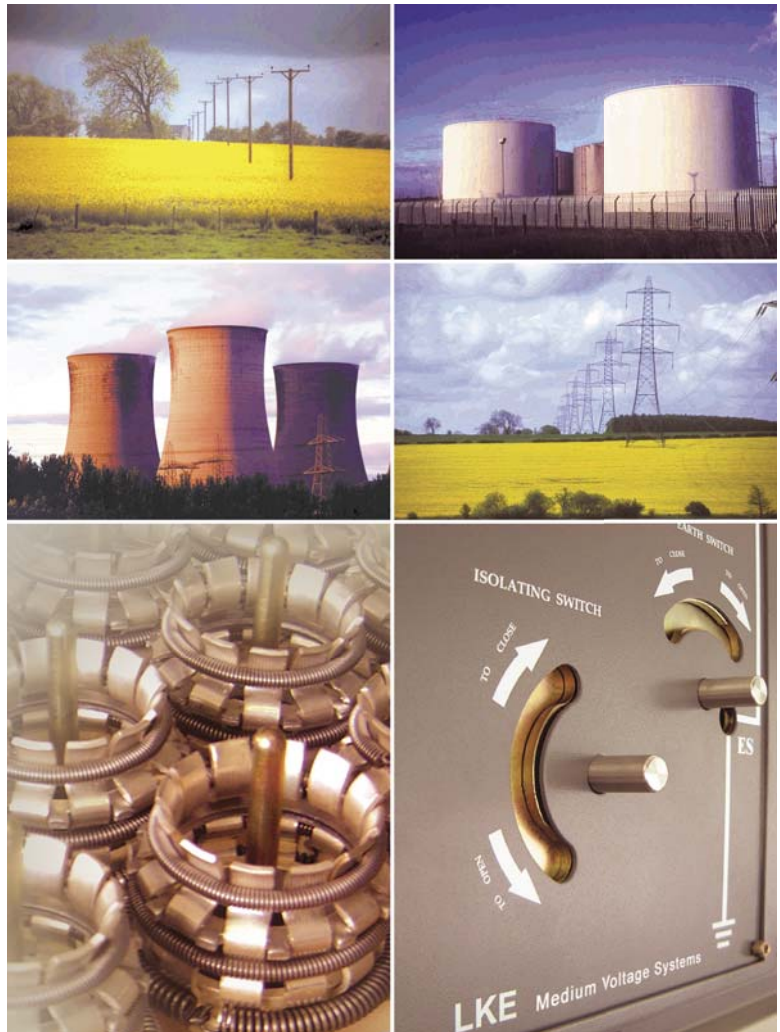


Air Load Break Switch



12/24kV
LKE-ALBS Load Break Switch
LCA-A Air-Insulated Switchgear



FM 73638

ALBS (12/24kV load break switch)

The **ALBS** load break switch is designed for 6 kV ~ 24 kV applications. Mounted within a switchboard enclosure, the **ALBS** is suitable for indoor or outdoor applications depending on the construction of the switchboard.

Being an improved version of the current LBS series Air load break switch, the **ALBS** is capable of higher performance. At the same time it is compactly designed using lighter and stronger engineering materials, making it an altogether smaller product.

Like its predecessor, the **ALBS** is a three phase air "puffer" load break switch which uses compressed air as an arc quenching medium. However, the **ALBS** incorporates an improved air compression system which enables a higher breaking capacity than the LKE-LBS.

The spring charged driving mechanism of the switch is located at the front of the switch for ease of access during service.

The **ALBS's** reduced dimensions implies that it can be housed in smaller enclosures with air being the insulating medium. Due to its simple and compact design, the **ALBS** is both an economical as well as effective solution for medium voltage power distribution and protection applications.

■ Operating Conditions

- Ambient temperature: -20 °C to +40 °C
- Height above sea level of less than 1000m.
- Relative humidity: Daily average of less than 95% and monthly average of less than 90% .
- Operation in enclosures only.
- Environment: no fire, explosive hazard, chemical corrosion and no frequent violent vibration.

■ The ALBS Load break switch has been type tested in compliance with the following standards:

- IEC 265-1
- IEC 60420
- IEC 60694



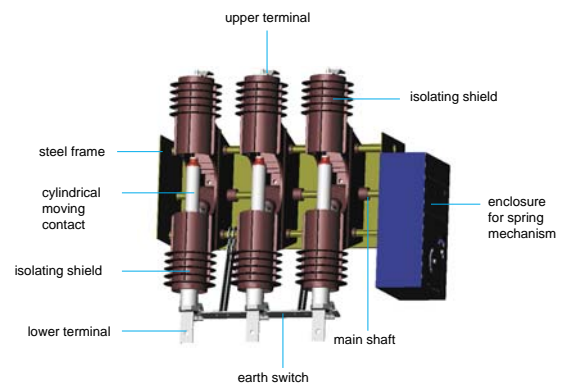
Frontal view of the ALBS-BF 10 12kV



Frontal view of the ALBS-BF 5 12/24kV



Frontal view of the ALBS-AL 1 6/12kV



External view of ALBS



LCA-A Air-Insulated switchgear

The **LCA-A** switchboard is a modular system consisting of extensible panels.

As an air-insulated switchgear panel it is extremely compact at 400mmX800mmX1700mm (WXDXH) for 12kV (IEC) ratings. As such, it is ideal for applications where space limitations are severe.

The **LCA-A** is commonly used for applications within prefabricated mobile or underground substations where its reduced dimensions and weight of the cubicles allows for ease of handling and prompt installation. It is commonly used with HRC fuses as protection fusegear where it is a safe and economical solution for protecting transformers with ratings up to 800 kVA.

Its flexible design allows for a wide range of applications:

- Prefabricated outdoor substations and RMUs
- Industrial switchboard systems
- Urban and rural power distribution systems

■ Operating Conditions

- Ambient temperature: -20 °C to +40 °C
- Height above sea level of less than 1000m, for greater altitudes, refer to the next section.
- Relative humidity: Daily average of less than 95% and monthly average of less than 90% .
- Operation in enclosures only.
- Environment: no fire, explosive hazard, chemical corrosion and no frequent violent vibration.

■ LCA-A was type-tested in compliance with the following standards:

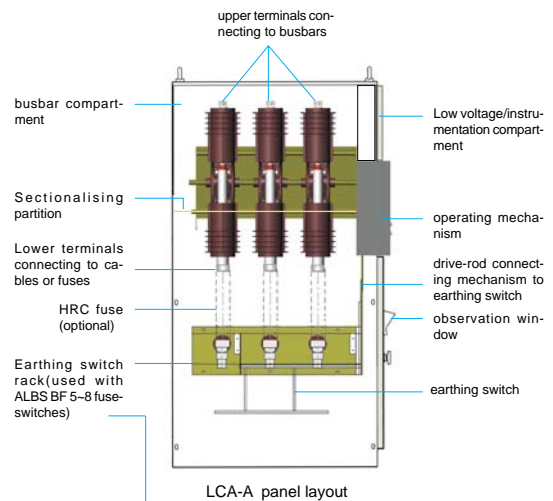
- IEC 298



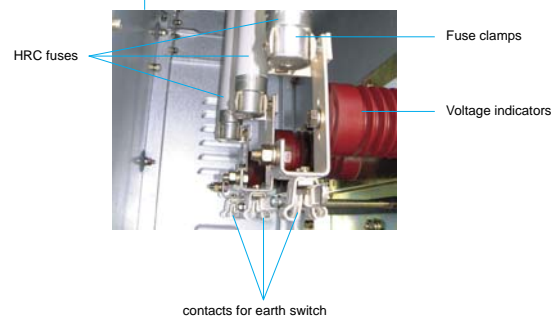
LCA-A and measurement panels.



LCA-A RMU (ALBS within)



LCA-A panel layout



contacts for earth switch



Technical parameters

■ Technical parameters of the ALBS load break switches

Electrical Characteristics	Unit	Parameters		
Rated voltage	kV	12	17.5	24
Maximum service voltage	kV	12	17.5	24
Withstand voltage to earth and between poles	kV	28	38	50
Withstand voltage across the isolating distance	kV	32	45	60
Impulse withstand voltage to earth and between poles	kV	75	95	125
Impulse withstand voltage across the isolating distance	kV	85	110	145
Rated current	A	630	630	630
Breaking capacity for active circuits and for ring-circuits	A	630	630	630
Breaking capacity for no-load transformers	A	16	16	16
Partial discharge	PC	<5	<5	<5
Breaking capacity for no-load line and cables	A	25	25	25
Short-time current *	kA	20/3s	20/3s	20/3s
Making capacity	kA	50	40	31.5
Max. breaking capacity (transfer current)**	A	1700	1300	1100
Prospective breaking capacity (of fuses)	kA	50	50	31.5
Mechanical endurance	times	4000	4000	4000
Electrical endurance	times	500	500	500
Mechanical response ***	ms	50	50	50

■ Technical parameters of the LCA-A Switchgear

Electrical Characteristics	Unit	Parameters			
Rated voltage	kV	12	17.5	24	
Maximum service voltage	kV	12	17.5	24	
Withstand voltage to earth and between poles	kV	28	38	50	
Withstand voltage across the isolating distance	kV	32	45	60	
Impulse withstand voltage to earth and between poles	kV	75	95	125	
Impulse withstand voltage across the isolating distance	kV	85	110	145	
Rated current	A	630	630	630	
Breaking capacity for active circuits and for ring-circuits	A	630	630	630	
Breaking capacity for no-load transformers	A	16	16	16	
Partial discharge	PC	<5	<5	<5	
Breaking capacity for no-load line and cables	A	25	25	25	
Short-time current *	kA	20/3s	20/3s	20/3s	
Making capacity	kA	50	40	31.5	
Max. breaking capacity (transfer current)**	A	1700	1300	1100	
Prospective breaking capacity (of fuses)	kA	50	50	31.5	
Mechanical endurance	times	4000	4000	4000	
Electrical endurance	times	500	500	500	
Mechanical response ***	ms	50	50	50	
Panel dimension****	width	mm	400	450	570
	depth	mm	750	950	1100
	height	mm	1650	1700	2100

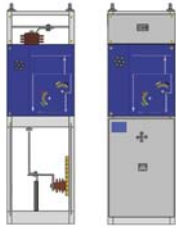
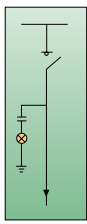
(-) - ALBS-AL or BL type for application.

(=) - ALBS-BF type for application.

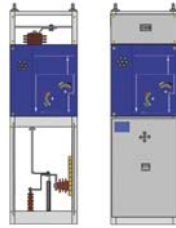
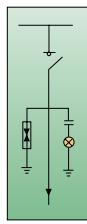
(=) - The mechanical response time of the ALBS refers to the time passed between the triggering of the tripping mechanism until the opening of the main contacts.

(****)-The actual dimensions of the ALBS panels depend on the customer's wiring scheme,integrated components such as CT,VT,surge arrestors and metering instruments.

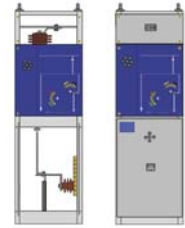
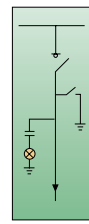
Layout of standard panels



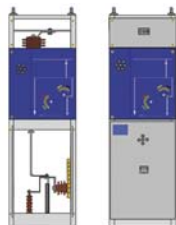
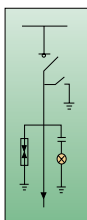
Line switch section LCA-A1	
Rated voltage	H X W X D (mm)
12kV	1300/1500/1700X400X800
24kV	2100X570X1100



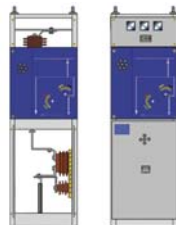
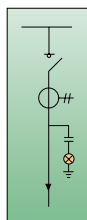
Line switch section LCA-A2	
Rated voltage	H X W X D (mm)
12kV	1500/1700X400X800
24kV	2100X570X1100



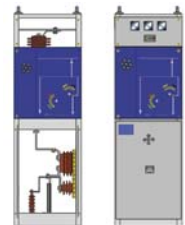
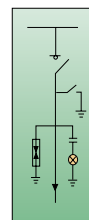
Line switch section LCA-A3	
Rated voltage	H X W X D (mm)
12kV	1300/1500/1700X400X800
24kV	2100X570X1100



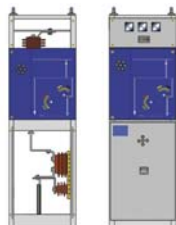
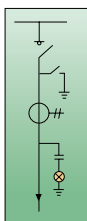
Line switch section LCA-A4	
Rated voltage	H X W X D (mm)
12kV	1500/1700X400X800
24kV	2100X570X1100



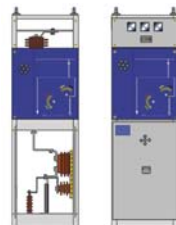
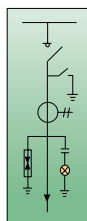
Line switch section LCA-A5	
Rated voltage	H X W X D (mm)
12kV	1500/1700X400X800
24kV	2100X570X1100



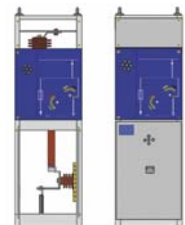
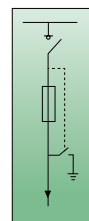
Line switch section LCA-A6	
Rated voltage	H X W X D (mm)
12kV	1500/1700X400X800
24kV	2100X570X1100



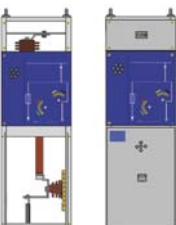
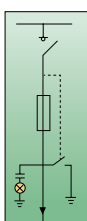
Line switch section LCA-A7	
Rated voltage	H X W X D (mm)
12kV	1500/1700X400X800
24kV	2100X570X1100



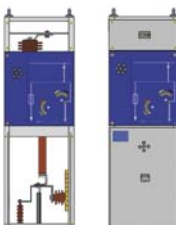
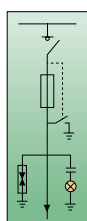
Line switch section LCA-A8	
Rated voltage	H X W X D (mm)
12kV	1500/1700X400X800
24kV	2100X570X1100



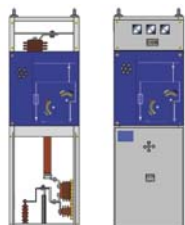
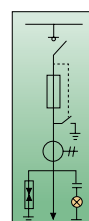
Transformer protection section LCA-A9	
Rated voltage	H X W X D (mm)
12kV	1500X450X800 or 1700X400X800
24kV	2100X570X1100



Transformer protection section LCA-A10	
Rated voltage	H X W X D (mm)
12kV	1500X450X800 or 1700X400X800
24kV	2100X570X1100



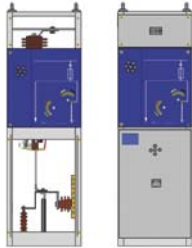
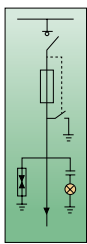
Transformer protection section LCA-A11	
Rated voltage	H X W X D (mm)
12kV	1500X450X800 or 1700X400X800
24kV	2100X570X1100



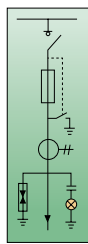
Transformer protection section LCA-A12	
Rated voltage	H X W X D (mm)
12kV	1500X450X800 or 1700X400X800
24kV	2100X570X1100



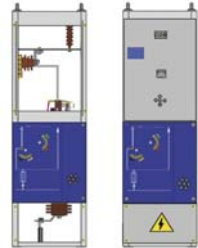
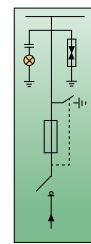
Layout of standard panels



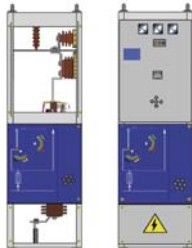
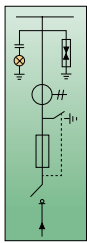
Transformer protection section LCA-A13	
Rated voltage	H X W X D (mm)
12kV	1500X560X800/900 or 1700X560X800/900



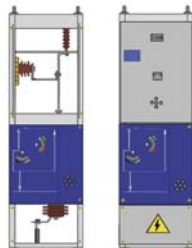
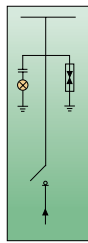
Transformer protection section LCA-A14	
Rated voltage	H X W X D (mm)
12kV	1500X560X800/900 or 1700X560X800/900



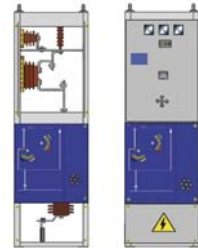
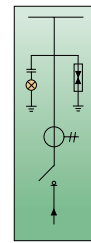
Transformer protection section LCA-A15	
Rated voltage	H X W X D (mm)
12kV	1500X560X800/900 or 1700X560X800/900



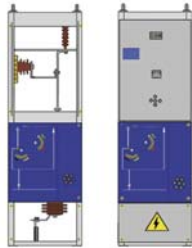
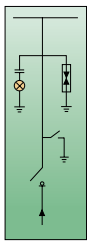
Transformer protection section LCA-A16	
Rated voltage	H X W X D (mm)
12kV	1500X560X800/900



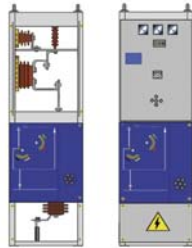
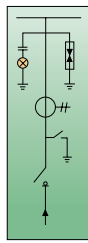
Line switch section LCA-A17	
Rated voltage	H X W X D (mm)
12kV	1500X400X800
24kV	2100X570X1100



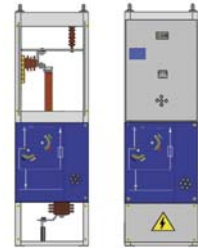
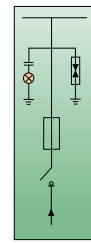
Line switch section LCA-A18	
Rated voltage	H X W X D (mm)
12kV	1500/1700X400X800
24kV	2100X570X1100



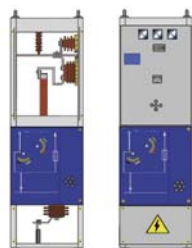
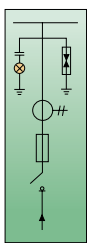
Line switch section LCA-A19	
Rated voltage	H X W X D (mm)
12kV	1500X400X800
24kV	2100X570X1100



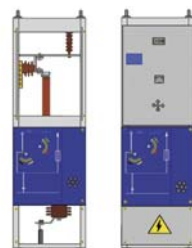
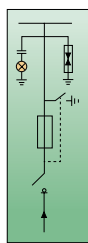
Line switch section LCA-A20	
Rated voltage	H X W X D (mm)
12kV	1500/1700X400X800
24kV	2100X570X1100



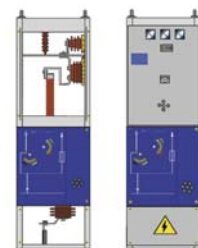
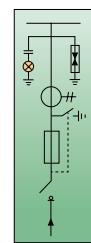
Transformer protection section LCA-A21	
Rated voltage	H X W X D (mm)
12kV	1500X450X800 or 1700X400X800
24kV	2100X570X1100



Transformer protection section LCA-A22	
Rated voltage	H X W X D (mm)
12kV	1700X400X800
24kV	2100X570X1100



Transformer protection section LCA-A23	
Rated voltage	H X W X D (mm)
12kV	1500X450X800 or 1700X400X800
24kV	2100X570X1100



Transformer protection section LCA-A24	
Rated voltage	H X W X D (mm)
12kV	1700X400X800
24kV	2100X570X1100



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