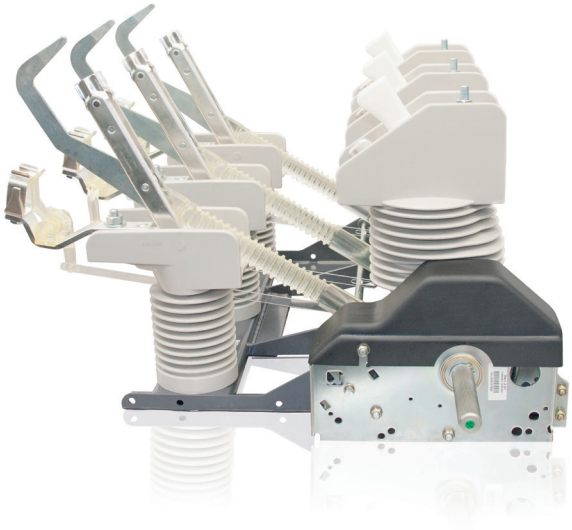
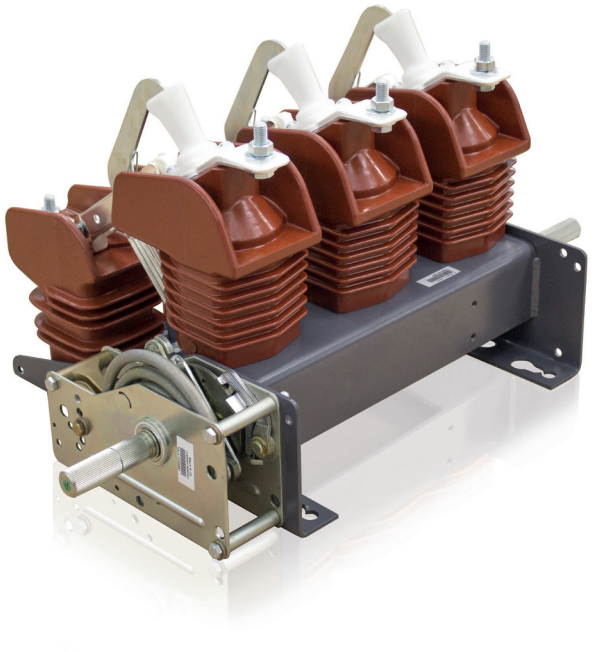
NAL/NALF – H versions for 12&24 kV
New indoor air load break switch and switch-fuse combination for compact substations

The new version of indoor switch is part of NAL/NALF brand that is well known around the globe, and more than 600,000 switches have been produced so far. With a unique design that extinguishes electric arcs and enables high switching capacity, they represent an attractive solution as a key breaking element for applications in enclosed switchgear and transformer compact substations.
In combination with type CEF current limiting fuses, NALF switch-fuse combination ensures control over the full range of overload and short-circuit currents.





NAL/NALF – H 12&24 kV for compact substations

This new NAL/NALF version that has been differentiated by letter „H" added at the end of product name, brings new standard of performance in harsh operating conditions. Climate with frequent changes of temperature and high level of humidity requires both special design of switches and compact substations with careful treatment of substation's foundation. The NAL/NALF – H versions successfully meet that demands and therefore new insulators have longer creepage distance and they are made of materials more resistant against water condensation conditions.

NAL/NALF – H highlights

- Wide operating temperatures within -40/+70 Celsius degrees;
- Mechanical endurance: 1000 operations;
- 100 breaking operations at 630 rated current;
- 15 years maintenance intervals (see details in product manual);
- Easy replaceable with standard NAL/NALF design.

Technical data

Switch disconnector type NAL/NALF – H 12&24 kV with extended creep

Rated voltage	Un	kV	12			24			
Rated current	In	A	400	630	1250	400	630	1250	
Max. rated current	In	A	400	630	1150	400	630	1150	
Short circuit making capacity	Ima (peak)	kA	67			50			
Peak withstand current	Idyn (peak)	kA	82			82			
Short time current	Ith (eff.)	kA							
1s			31	31	31	31	31	31	
2s			25	25	25	25	25	25	
3s			20	20	20	16	16	16	
Mainly active load breaking capacity [2] (test duty 1 and 2, IEC 60265-1 (IEC 265))		A	400	630	1250	400	630	1250	
Rated cable/line charging breaking capacity, IEC 60265 (IEC 265)		A	150	150	150	80	80	80	
Mainly inductive breaking capacity cos φ = 0,15		A	16	16	16	16	16	16	
Rated earth fault breaking capacity, IEC 60265 (IEC 265)		A							
Earth fault breaking capacity, fig. 6			150			75			
Capacitive breaking capacity, fig. 7			90			31,5			
Max. breaking capacity in co-operation with fuses (IEC 62271-105)		A	1600	1600		900	900		
Max. fuse size [4]		A	125	125		80	80		
Power frequency withstand voltage 50 Hz 1 min.		kV							
to earth and between poles			42			50			
across isolating distance			42			60			
Impulse withstand voltage 1,2/50 us		kV							
- to earth and between poles			75			125			
- across isolating distance			85			145			
Pole distance		mm	150-210			235-275			
Max. operating torque at		Nm							
- closing K/A mech.			115-120			115-120			
- opening K mech.			120			120			
- opening/A mech.			3			3			
Operating angle on the shaft		degree	130			130			
Opening time		ms	40-60			40-60			
Arc time		ms	10-20			10-20			

Earthing switch type E [1] for NAL/NALF and type EB

Rated voltage	Un	kV	12	24
Peak withstand current [3]	Idyn (peak)	kA	62/82	38/82
Short time current	Ith (eff.)	kA		
1s			31,5	31,5
2s			25	20
3s			20	16
Short circuit making capacity [3]	Ima (peak)	kA	62/75	38/50
Test voltage 50 Hz 1 min.		kV	42	50
Power frequency withstand voltage		kV	75	125
Pole distance		mm	150-210	235-275

[1] Mechanical interlocking can be fitted.
[2] At In = 630A, 100xCO. At In = 1250 A, 20xCO.
[3] When fed from switch disconnector/earthing switch side.
[4] Max. fuse size is ref. to time current characteristics for CEF.

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