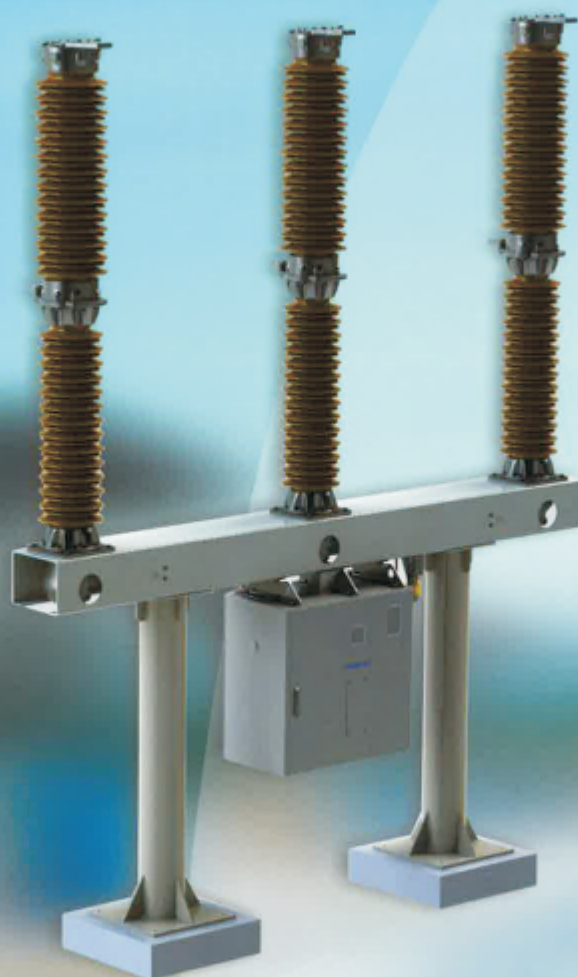


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VISOKONAPONSKI SF6 PREKIDAČ ZA VANJSKU MONTAŽU TIP 8E1 za 72,5 - 145 kV
HIGH-VOLTAGE OUTDOOR SF6 CIRCUIT-BREAKER TYPE 8E1 for 72,5 - 145 kV

Nastavljajući šezdesetogodišnju tradiciju uspješne proizvodnje i primjene visokonaponskih prekidača, KONČAR je razvio i tipski ispitao SF6 prekidač tipa 8E1 kojeg u odnosu na prethodnu generaciju prekidača karakterizira dodatno optimirana prekidna komora, novi pouzdani motorno-opružni pogonski mehanizam te vrlo mala ukupna masa. Prema zahtjevima kupaca, prekidači 8E1 se isporučuju s mogućnošću tropolnog ili jednopolnog upravljanja, tj. s jednim ili tri pogonska mehanizma (jedan po polu).

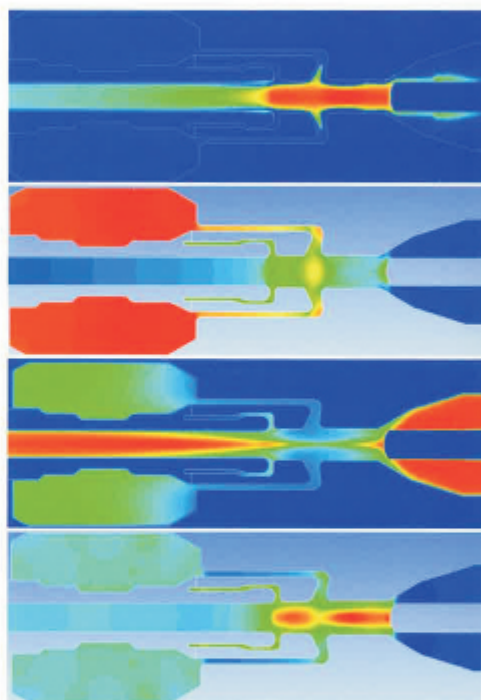


Sl. 1 Prekidač 8E1-III 123 kV
Fig. 1 Circuit-breaker 8E1-III 123 kV

Polni stup

Polni stup se sastoji od prekidne komore, silikonskog ili porculanskog potpornog izolatora te međuprigona. Njihova montaža, podešavanje i ispitivanje na podnožju prekidača vrši se u tvornici te se isporučuju kao zasebne transportne jedinice s pretpunjenjem plina SF6, čime se smanjuje vrijeme potrebno za terensku montažu. Za potrebe razvoja i optimiranja nove prekidne komore čiji je rad zasnovan na već provjerenom autokompresijskom principu s korištenjem energije luka, razvijen je matematički model gašenja električnog luka. Time je osiguran pouzdan i učinkovit kontaktni sustav prekidača.

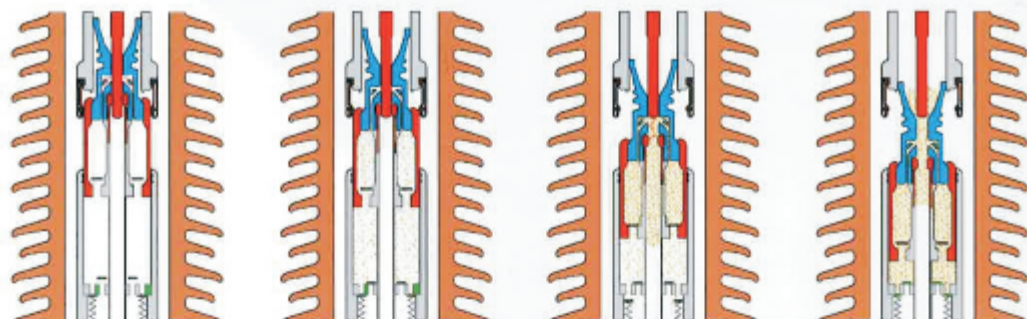
Continuing a 60-year tradition of successful production and usage of high-voltage circuit-breakers, KONČAR has developed and type tested a SF6 type 8E1 circuit-breaker. In relation to the previous generation of SF6 circuit-breakers, the 8E1 circuit-breaker is characterized with additionally optimized interrupter unit, new reliable motor-spring operating mechanism and very low total mass. Based on customer demands, 8E1 circuit-breakers can be delivered with possibility of three-pole or single-pole operation, i.e. with one or three operating mechanisms (one per pole).



Sl. 2 Modeliranje procesa gašenja električnog luka
Fig. 2 Electrical arc extinguishing process modelling

Pole column

Pole column is consisted of interrupter unit, silicone or porcelain post insulator and crank case assembly. Their assembling, adjusting and testing on a circuit-breaker base is made in the factory and they are delivered as an individual transport units with a SF6 gas pre-filling which reduces mounting time in the station. For development and optimization requirements of interrupter unit that works on a well proven self-blast principle, a mathematical model of electrical arc quenching has been made. By doing so, it has been provided a reliable and effective circuit-breaker contact system.



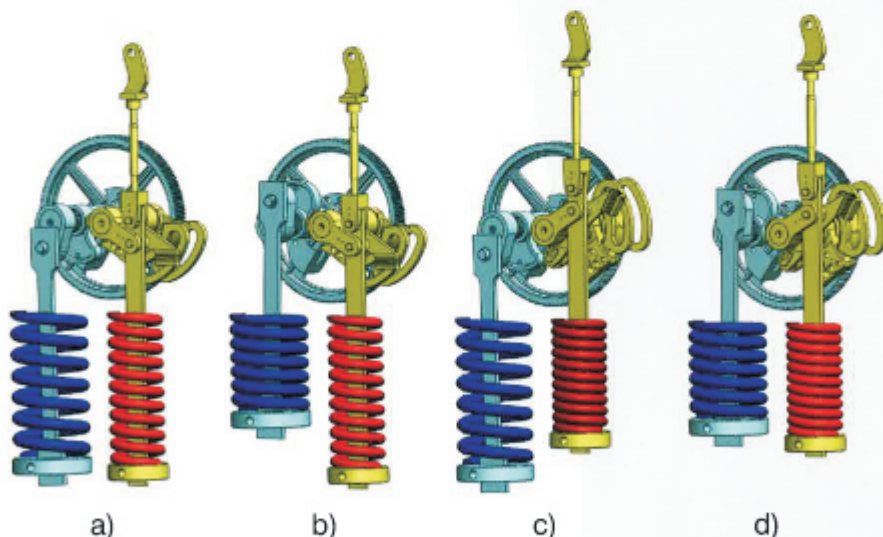
Sl. 3 Shematski prikaz gašenja luka autokompresijskim principom s korištenjem energije luka
Fig. 3 Arc-quenching principle with the self-blast technology

Pogonski mehanizam

Motorno opružni pogonski mehanizam koji se odlikuje pouzdanosti, brzinom i jednostavnom montažom na terenu te respektabilnim vremenima otvaranja/zatvaranja kontakata komore smješten je u aluminijskom pogonskom ormaru koji uz manju masu prekidača osigurava otpornost na koroziju. Uz već standardnu pomoćnu električnu opremu koju je prema zahtjevima moguće prilagoditi kupcu, posebnost prekidača je ispitni konektor koji se tijekom korištenja može iskoristiti za monitoring ili terensku dijagnostiku. Informacije o dodatnoj opciji monitoringa dostupne su na upit.

Operating mechanism

Motor spring operating mechanism that is characterized by its reliability, fast and simple station mounting and respectable contact closing/opening time, is placed in an aluminum operating mechanism cubicle which ensures lower circuit-breaker mass and corrosion resistance. Besides the standard electrical auxiliary equipment that can be adapted on customer demands, a circuit-breaker uniqueness is a test connector that can be used for monitoring or diagnostic purposes during the usage time. Informations regarding the additional monitoring option are available on request.



Sl. 4 Shematski prikaz motorno-opružnog pogona prekidača u četiri karakteristična stanja
(plavo – uklopna opruga, crveno – isklompna opruga)

Fig. 4 Schematic representation of the circuit breaker's motor-spring operating mechanism in four characteristic states (blue - closing spring, red - opening spring)

- a) obje opruge nenapete;
- b) uklopna opruga napeta, isklompna opruga nenapeta;
- c) uklopna opruga nenapeta, isklompna opruga napeta;
- d) obje opruge napete.

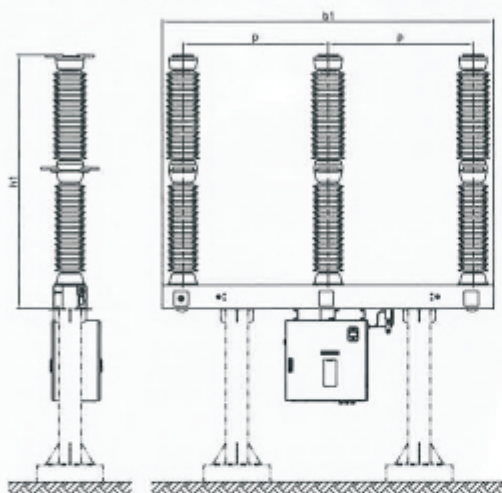
- a) both springs discharged;
- b) closing spring charged, opening spring discharged;
- c) closing spring discharged, opening spring charged;
- d) both springs charged.

DIMENZIJE PREKIDAČA 8E1-III S TROPOLNIM UPRAVLJANJEM
THREE-POLE OPERATED 8E1-III CIRCUIT-BREAKER DIMENSIONS

DIMENZIJE	DIMENSIONS				
Nazivni napon	Rated voltage	kV	72,5	123	145
Razmak polova (p)	Pole distance (p)	mm	1100	1750	1750
Visina (h1)	Height (h1)	mm	2638	3038	3288
Duljina (b1)	Length (b1)	mm	2700	4000	4000

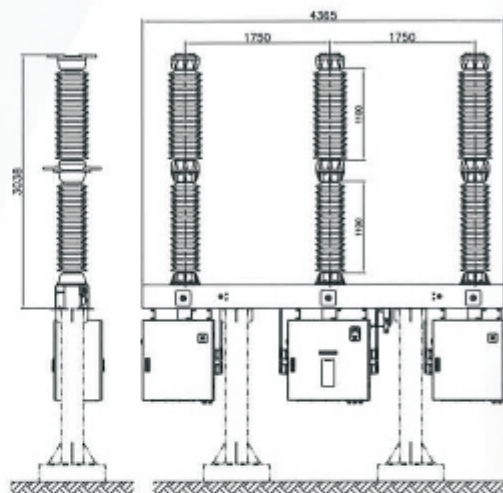
Napon (kV) - Voltage (kV)	72.5	123	145
Masa (kg) - Mass (kg)	1455	1585	1640

Napon (kV) - Voltage (kV)	123
Masa (kg) - Mass (kg)	2015



Sl. 5 SF6 prekidač 8E1-III za 72.5-145 kV s tropolnim upravljanjem (jedan pogonski mehanizam)

Fig. 5 Three-pole operated SF6 circuit-breaker 8E1-III for 72.5-145 kV (one operating mechanism)



Sl. 6 SF6 prekidač 8E1-I 123 kV s jedнопolnim upravljanjem (tri pogonska mehanizma)

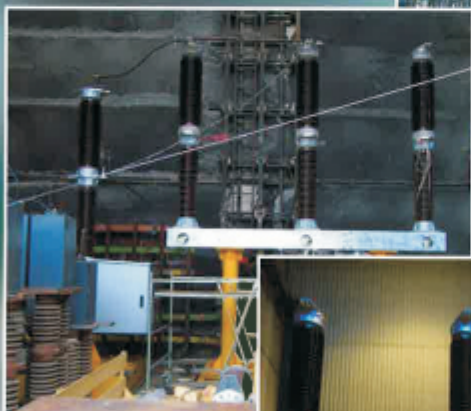
Fig. 6 Single-pole operated SF6 circuit-breaker 8E1-I 123 kV (three operating mechanisms)

Tehnički podaci

Technical data

72.5-145 kV

Nazivni napon	Rated voltage	kV	72.5	123	145
Nazivni podnosivi atm. udarni napon (1.2/50µs)	Rated lightning impulse whitstand voltage (1.2/50µs)	kV	325	550	650
Nazivni podnosivi napon ind. frekvencije (1 min)	Rated power frequency whitstand voltage (1 min)	kV	140	230	275
Nazivna frekvencija	Rated frequency	Hz	50/60		
Nazivna struja	Rated normal current	A	...3150 (4000)		
Nazivna prekidna struja kratkog spoja	Rated breaking current	kA	...40 (50)		
Nazivna kratkotrajno podnosiva struja (1/3 s)	Rated short-time whitstand current (1/3 s)	kA	...40 (50)		
Nazivna podnosiva udama struja	Rated peak whitstand current	kA	...100 (125)		
Nazivni sklopni ciklus	Rated duty cycle	O-0,3 s - CO-3 min-CO II/III/or CO-15 s-CO			
Vrijeme otvaranja	Opening time	ms	25		
Vrijeme zatvaranja	Closing time	ms	60		
Klasa električne i mehaničke trajnosti	Electrical and mechanical enurance class	E2, M2			
Napon upravljanja	Control voltage	V DC	110 / 125 / 220		
Napon motora	Motor voltage	V DC/V AC	110 / 125 / 220		
Temperatura okoline	Temperature range	°C	(-45) -30 ... +40		
Primijenjeni standardi	Applied standards	IEC 62271 - 100, IEC 62271 - 1			





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