High-voltage outdoor SF_6 circuit breakers

Series 8E1

- Live tank circuit breaker for outdoor applications
- Rated voltages from 123 kV up to 145 kV, 3150 A and 40 kA short circuit rating
- High level of reliability, even under extreme conditions and climates
- Completely factory preassembled prior to delivery
- Easy installation and commissioning with long intervals between maintenance
- Three-pole or single-pole operated

KONČAR
SWITCHGEAR

Ref: KAP_8E1_HE_220310

1. INTRODUCTION

High voltage circuit breaker series 8E1 is characterized with optimized interrupter unit, reliable motor spring operating mechanism and very low total mass.

Based on customer demands, the circuit breaker series 8E1 can be delivered with possibility of three-pole or single-pole operation, i.e. with one or three operating mechanisms (one per pole).

Fig. 1 Circuit breaker 8E1-III, 123 kV

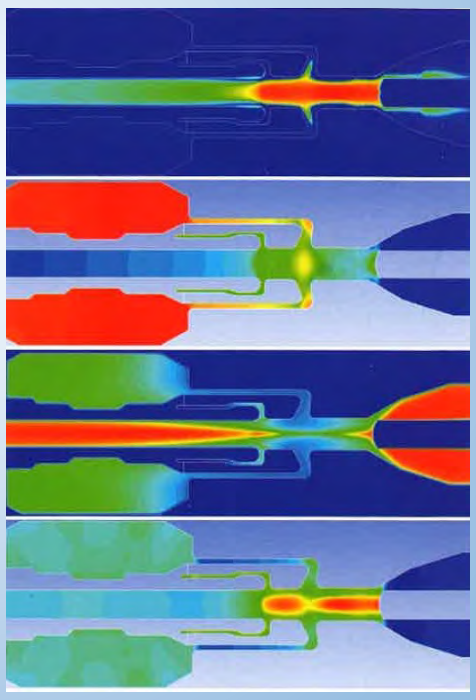

Fig. 2 Electrical arc quenching process – mathematical model

2. POLE COLUMN

Pole column consists of interrupter unit, 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 SF_6 gas pre-filling, which reduces mounting time at site. The basic principle of electric arc quenching is shown in Figure 3.

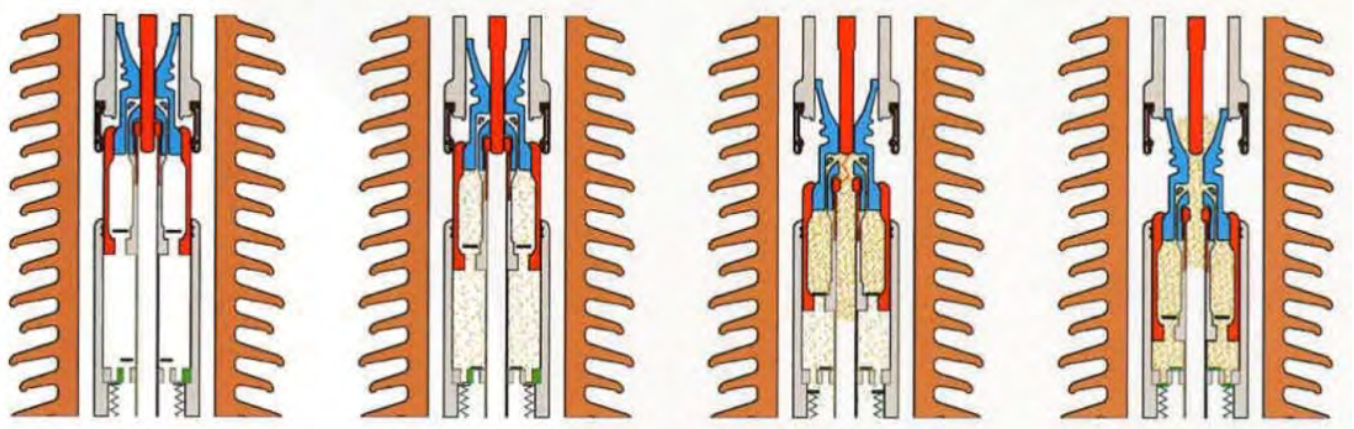

Fig. 3 Arc-quencing principle with self-blast technology

3. OPERATING MECHANISM

Motor-spring operating mechanism is placed in a corrosion-resistant housing.

The operating mechanism is characterized by its reliability, fast and simple site mounting and respectable contact closing/opening time. The mass of the circuit breaker has been minimized.

Besides standard electrical auxiliary equipment, that can be adapted in accordance with customer's demands, the circuit breaker is equipped with a test connector for auxiliary circuits, which can be used for monitoring or diagnostic purposes during the usage time. Information regarding the additional monitoring option is available on request.

4. OVERALL DIMENSIONS

Rated voltage	**kV**	**72,5**	**123**	**145**
Pole distance **p**	mm	1100	1750	1750
Height **h1**	mm	2638	3038	3288
Width **b1**	mm	2700	4000	4000

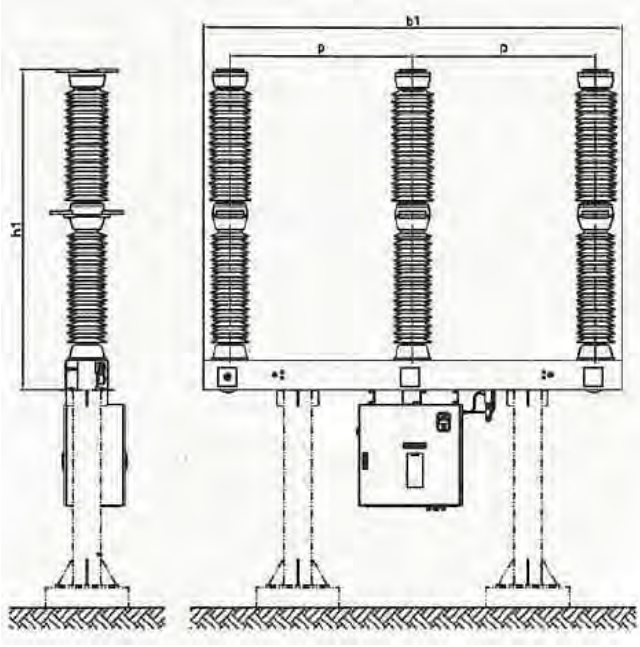

Fig. 5 Three-pole operated SF_6 circuit breaker 8E1-III for 72,5 – 145 kV

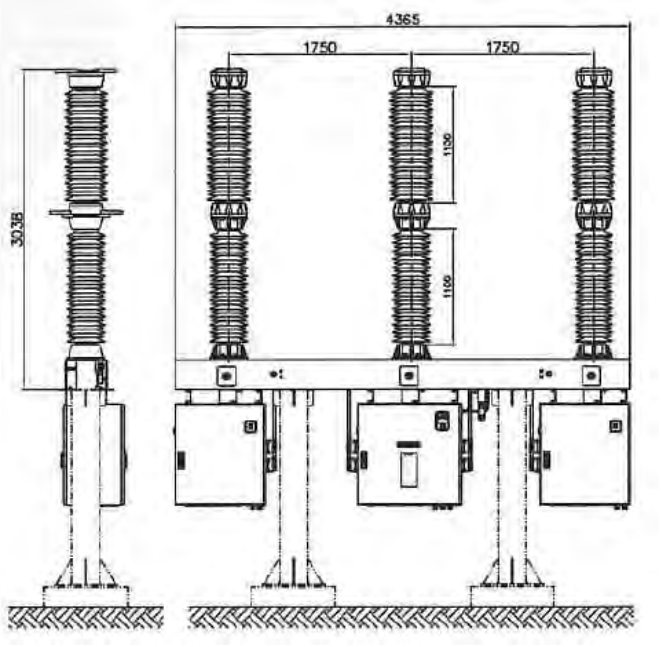

Fig. 6 Single-pole operated SF_6 circuit breaker 8E1-I for 123 kV

5. BASIC TECHNICAL DATA

Rated voltage	kV	123	145
Rated lightning impulse voltage 1,2/50 µs	kV	550	650
Rated power frequency withstand voltage (1 min.)	kV	230	275
Rated frequency	Hz	50	
Rated normal current	A	...3150	
Rated breaking current	kA	... 40	
Rated short-time withstand current (1s or 3 s)	kA	... 40	
Rated peak withstand current	kA	... 100	
Standard duty cycle		O-0,3s-CO-3min-CO	
Opening time	ms	≤ 30	
Closing time	ms	≤ 70	
Electrical and mechanical endurance class		E2, M2	
Control voltage	V=	110 / 125 / 220	
Motor voltage	V=	110 / 125 / 220	
Ambient temperature range	°C	- 30 ... + 40	
Applied standards		IEC 62271-1, IEC 62271-100	

Notice:
Technical characteristics, dimensional drawings and other relevant data are subject to change. Obligatory data – dimensional drawings, internal wiring diagrams, reference lists etc. are available on request by agreement with the client, as well as information on all other features that deviate from the data listed in this leaflet.

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Dimensional drawings are not shown in the scale. Please contact the manufacturer for technical solutions and details not provided in this promotional material/leaflet.

Obligatory data – dimensional drawings, wiring diagrams etc. are available on request.

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