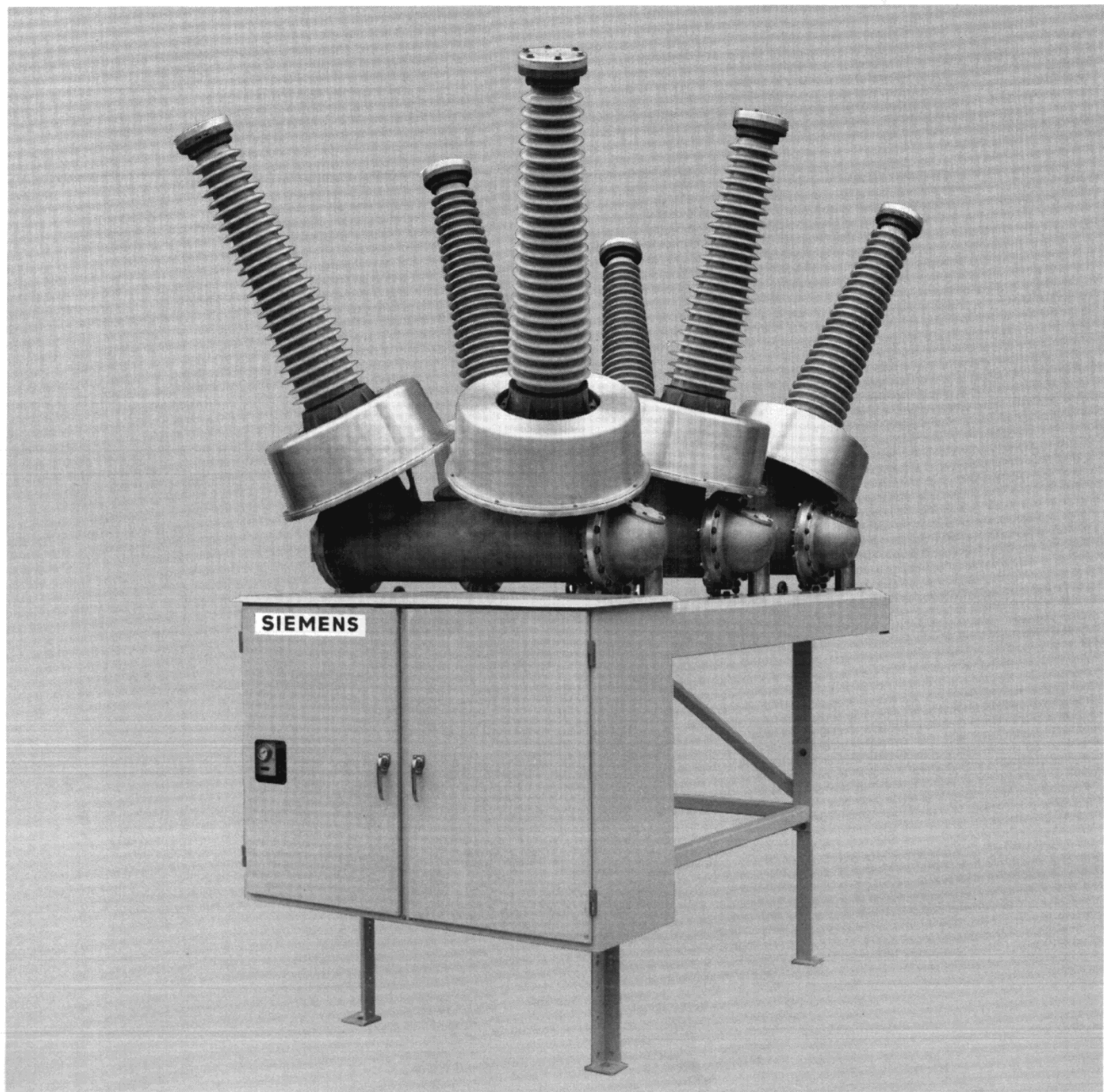


**SIEMENS**

# Type SPS Puffer Circuit Breaker

121 - 145kV  
1200, 2000 and 3000A

20, 25, 31.5 and 40kA  
3 cycle



# Application, Description, Features

## Application

Type SPS power circuit breakers are designed as general, definite purpose breakers for application at maximum rated voltages of 121 and 145 kV. Rated interrupting capacities are 20, 25, 31.5 or 40 kA. Continuous current ratings are 1200, 2000 or 3000 amperes.

The breakers are designed and tested to meet ANSI, IEEE, NEMA, IEC standards.

## Description

The type SPS breaker consists of three identical pole units mounted on a common support frame. The opening and closing force of the SE-4 spring operating mechanism is transferred to the moving contacts of the interrupter through a system of connecting rods and a rotating seal at the side of each phase.

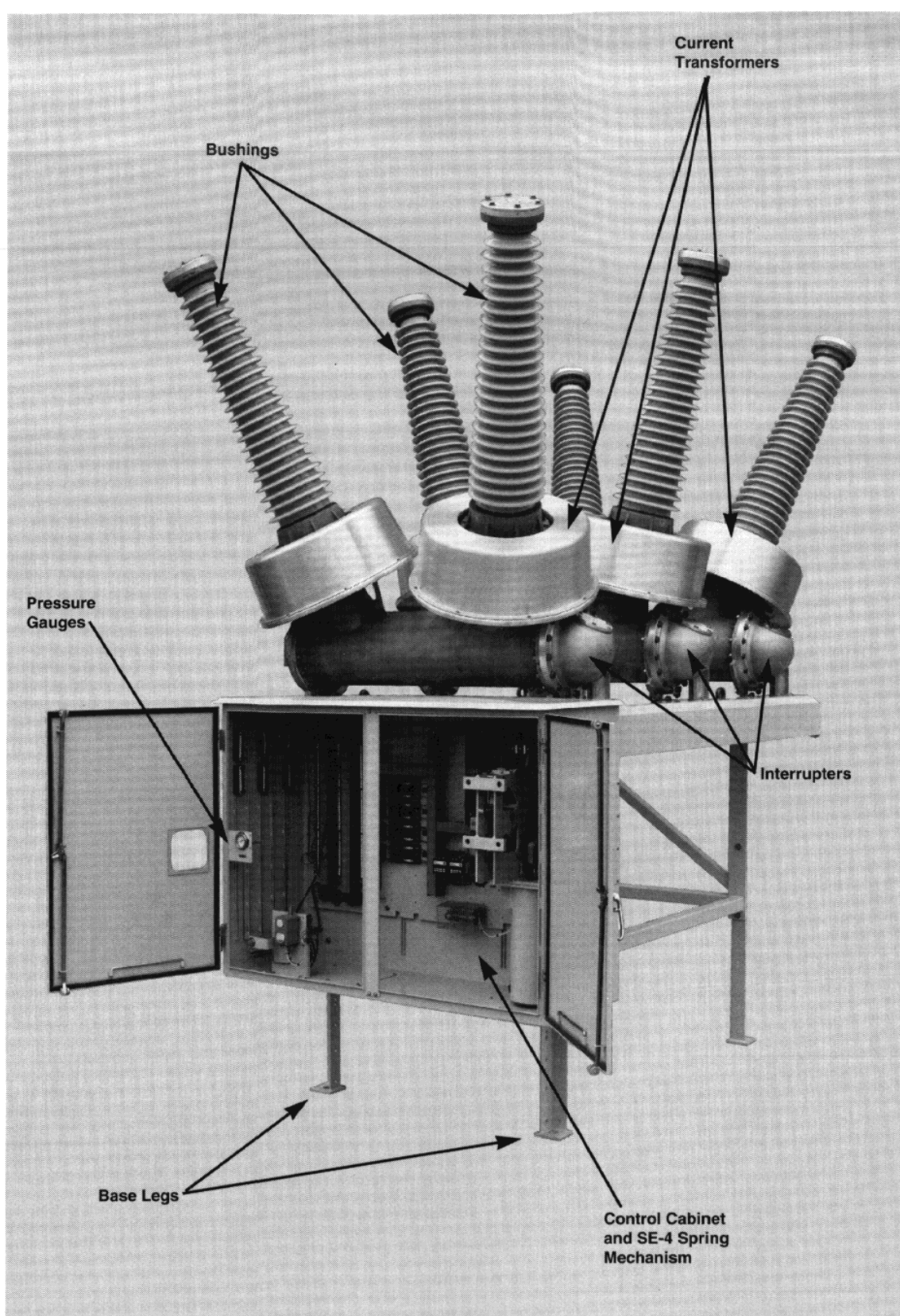
The tanks and the porcelain bushings are charged with SF<sub>6</sub> gas at a nominal pressure of 83 PSIG. The SF<sub>6</sub> serves as both insulation and arc quenching medium.

A control cabinet mounted at one end of the breaker houses the spring operating mechanism and breaker control components.

Interrupters are located in the aluminum housings of each pole unit. The interrupters use the latest Siemens puffer arc quenching system.

The spring operating mechanism is the same design as used with the Siemens SP breakers. This design has been in service for years, and has a well documented reliability record.

Customers can specify up to four (in some cases, up to six) bushing type current transformers per phase. These CTs, mounted externally on the aluminum housings, can be removed without disturbing the bushings.



## Features

- Dead tank construction.
- State-of-the-art interrupter design
- Extension of the high quality, reliable SP-72.5 breaker SE-4 spring mechanism.
- Light weight, simple design.
- Porcelain bushings.
- Bushing current transformers (space for 3 per bushing.)
- Low operating pressure.
- Tested and verified for 90% SLF
- Tested and verified for seismic application.
- Minimal noise.
- -40°C/-50°C application.
- Shipped fully assembled.

## Savings in Installation

- Factory pre-assembly, testing and timing with no internal field adjustments.
- Minimal gas handling. Shipped with 5 psig positive pressure.
- Minimal transportation and equipment handling. Truck shipment to site.
- Easy access for final wiring.
- Negligible foundation loading.
- Location of control cabinet allows for easy, direct breaker replacement for system upratings.
- Compact design allows use of existing foundations.



# Ratings and Operating Mechanism

## SPS-121-145kV

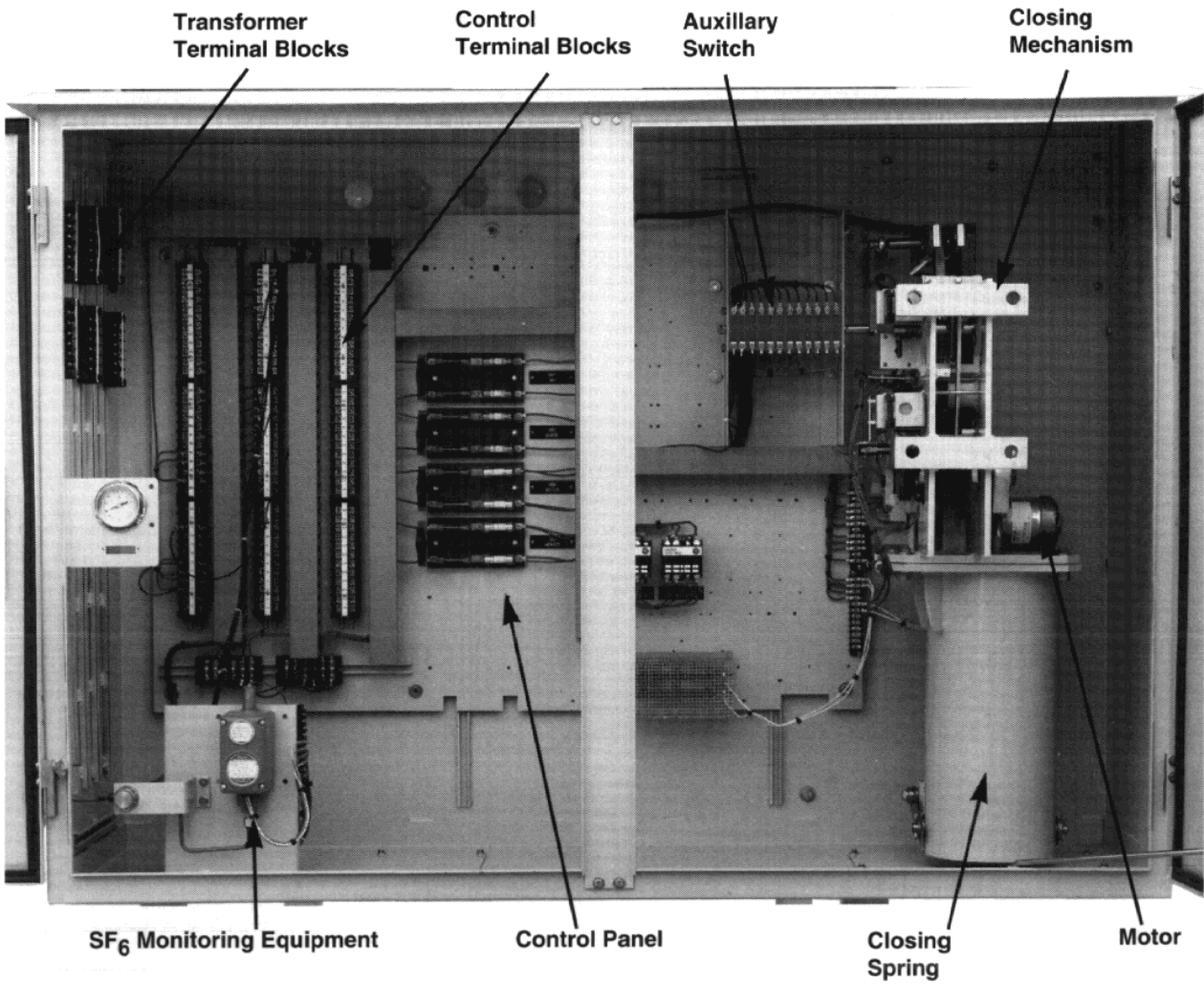
Identification		Ratings							Related Capabilities		
Type	Nominal kV Class	Voltage		Insulation		Current-Amperes		Interrupting Time (Cycles)	Current Values - Amperes		
		Rated Max. kV	Rated Voltage Range Factor K	Rated Withstand Test Voltage		Rated Continuous at 60 Cycles	Rated Short Circuit Current at Rated Max. kV		Maximum Symmetrical Interrupting Capability	3-Sec. Short- time Current Carrying Capability	Closing and Latching Capability
				Low Freq. (kV, rms)	Impulse (kV, Crest)						
SPS-121-20	115	121	1.0	260	550	1200/2000/3000	20,000	3	20,000	20,000	32,000
SPS-121-25	115	121	1.0	260	550	1200/2000/3000	25,000	3	25,000	25,000	40,000
SPS-121-31.5	115	121	1.0	260	550	1200/2000/3000	31,500	3	31,500	31,500	50,000
SPS-121-40	115	121	1.0	260	550	1200/2000/3000	40,000	3	40,000	40,000	64,000
SPS-145-20	138	145	1.0	310	650	1200/2000/3000	20,000	3	20,000	20,000	32,000
SPS-145-25	138	145	1.0	310	650	1200/2000/3000	25,000	3	25,000	25,000	40,000
SPS-145-31.5	138	145	1.0	310	650	1200/2000/3000	31,500	3	31,500	31,500	50,000
SPS-145-40	138	145	1.0	310	650	1200/2000/3000	40,000	3	40,000	40,000	64,000

The type SE-4 mechanically and electrically trip free spring mechanism is used on type SPS breakers. The type SE-4 closing and opening springs hold a charge for storing "open-close-open" operations.

A weatherproof control cabinet has a large door, sealed with rubber gaskets, for easy access during inspection and maintenance. Heater elements (475 watts) offer continuous inside/outside temperature differential for prevention of condensation.

Included in the control cabinet are necessary auxiliary switches, cutoff switch, latch check switch, alarm switch, and operation counter. The control relays and three control knife switches (one each for the control, heater and motor) are mounted on a control panel. Terminal blocks on the side and rear of the housing are available for control and transformer wiring.

The SE-4 is ideally suited for high speed reclosing. Reclosing speeds of 10 cycles from the instant of initial tripping impulse until the current is re-established are common.

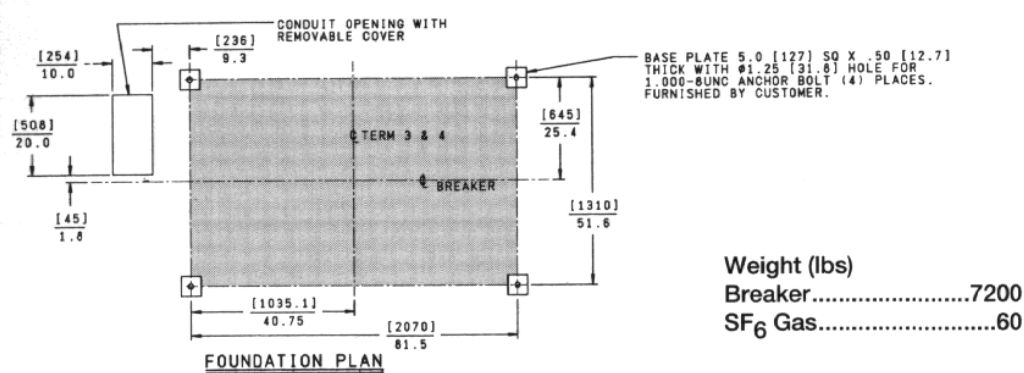




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# Type SPS Puffer Circuit Breaker

Siemens Energy & Automation, Inc. reserves the right to make changes in the specifications and products shown herein, or to add improvements, at any time, without notice or obligation.



- NOTES:
- 1. METRIC DIMENSIONS (XX.X) IN MICROMETERS.
  - 2. CLEARANCE REQUIRED FOR INSULATOR REMOVAL.
  - 3. HEIGHT MAY BE REDUCED 25.0 [635] IN 5.0 [127] INCREMENTS.

