

# Hitachi Energy

## Data schedule: CO<sub>2</sub> Circuit Breaker

Tender: QT-22-00830954 , Item: 1

### General data

Type		LTA 145D1
Type of operation		3 Pole Operation
Number of poles		3
Min temperature	°C	-40
Max temperature	°C	40
Max altitude	m	1000

### Ratings and guaranteed performance in accordance with IEC 62271-100

Rated voltage	kV	145
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#### Rated insulation levels

Rated lightning impulse withstand voltage to earth	kV <sub>peak</sub>	650
across the open circuit breaker	kV <sub>peak</sub>	650
Rated switching impulse withstand voltage to earth	kV <sub>peak</sub>	-
across the open circuit breaker	kV <sub>peak</sub>	-
Rated power frequency withstand voltage to earth	kV	275
across the open circuit breaker	kV	275
Rated frequency	Hz	50
Rated normal current	A	3150
Rated short-circuit breaking current	kA	40
DC component	%	47
First pole-to-clear factor		1.5
Rated transient recovery voltage for terminal faults	kV <sub>peak</sub>	

#### Rated characteristics for short line fault

Peak factor		1.6
RRRV factor	kV/μs/kA	0.2
Surge impedance	Ohm	450
Rated peak making current	kA <sub>peak</sub>	100
Rated duration of short-circuit current	s	3

#### Rated out of phase characteristics

Out of phase making and breaking current	kA	10
Voltage factor		2.5

Rated line charging breaking current	A	50
Rated cable charging breaking current	A	160
Capacitive switching class (No-load line/cable switching)		C2

Rated operating sequence		O-0.3s-CO-1min-CO
Mechanical endurance class		M2

#### Operating times

Opening time	ms	24-28
Break time	ms	50
Closing time	ms	<90

### Constructional features

Number of breaks per pole		1
Gas mixture		1.08 MPa CO <sub>2</sub> /0.12 MPa O <sub>2</sub>
Total mass of gas	kg	5 + 1
Volume of gas	liter	3 x 76
Max. working pressure	MPa (gauge)	1.25
Filling pressure at +20°C	MPa (abs)	1.20
Alarm pressure	MPa (abs)	1.04
Blocking pressure	MPa (abs)	1.00

Bursting disc	No
HV terminal	IEC(40) 9-hole + NEMA(44.5) 4-hole
Heater in packing boxes	Yes
Dimension print	1HSBDG00012-044
Rating plate	1HSBRG00033-313

**Insulators**

Type of insulators and colour		Grey composite
Min nominal creepage distance phase-to-earth	mm	4130
Min nominal creepage distance across open breaker	mm	5620

**Operating mechanism**

Number of drives		1
Motor charged spring operating mechanism		MSD2
Whether fixed trip or trip-free (IEC Publ.60050(441))		Trip-free
Operating voltage	VDC	110
Heater voltage	VAC	220
Motor voltage	VDC	110

**Power required at rated supply voltage by**

Closing coil	W	230
Opening coil	W	230
Motor	kW	1
Heating element, continuously	W	70
Heating elements, connected by thermostat	W	140

Number of available auxiliary contacts making and breaking	9NO+9NC
Manual trip	No
Type of terminals supply	Entrelec M6/8 STA (disconnectable)
Type of terminals signals	Entrelec M4/6
TCS resistor drive	YES without resistor
Circuit diagram drive	1HSBFT00001-AAB