

Medium Voltage Switchgears

Vacuum Circuit Breaker

630A - 2500A
7.2kV - 12kV
25kA - 31.5kA - 40kA



Vacuum circuit breaker

V range

The SQelectric V range vacuum circuit breaker is designed & made in conformity to IEC 60056 standards for system voltages from 7.2kV to 12kV.

The SQelectric vacuum circuit breaker is available in two main versions:

- fixed versions
- draw-out version

SQelectric V range of vacuum circuit breakers are designed for indoor applications and to protect & control MV public & industrial distribution network.

Key Features

- complete switching device for distribution switchgear
- Made for integration in the Bitoron-12 range switchgears and in the switchgears of other manufacturers
- Available in a great spectrum of possibilities
- Vacuum interrupters of the latest generation
- withstand extreme temperatures
- Long life of mechanical spring drive
- Maintenance free

Characteristics of the V range vacuum circuit breaker

- Epoxy casted housing with protected ventilation openings, developed to be used in the more severe climatic conditions
- State of the art long life vacuum interrupters
- Spring drive mechanism
- Developed and manufactured in line with the ISO 9001 Standards
- Type tested to IEC standards

Withdrawable version

- * The circuit breaker is equipped with all the components, including motorized operating system as standard, required for "ready to use" in metalclad cubicles.
- * Critical points such as inter-locking systems, dielectric withstand and temperature rise have been checked thoroughly during design and validated by test

Explanation of the used codification

- Ex : 7V1, 7V2, 7V3, and
12V1, 12V2 & 12V3
- 7 : System Voltage 7.2 kV
12 : System Voltage 12V
V : Circuit Breaker type
- 1 : 25 kA
2 : 31.5 kA
3 : 40 kA

Operation

Increased safety

SQelectric VCB has been designed and made to provide maximum safety for operators whilst using in Bitoron 12 Switchgears guarantee the simplicity and rapidity of operations.

- * Protective metal shutters.
- * Safety interlocking systems to avoid operator errors when racking in or out
- * Racking in/ out possible only with the door closed.
- * Safety interlocking to avoid operators errors on earthing switch.



Common characteristics according to IEC 60056

rated frequency	fr	(Hz)	50 & 60
short-time withstand current	Ik for tk = 3s	(kA) rms	Ik = Isc
rated peak withstand current	Ip	peak (kA)	Ip = 2.5 & 2.6 Ik
rated short circuit making current		peak (kA)	= 2.5 & 2.6 Isc
			O-3 mn - CO - 3 mn - CO
operating sequence			O-0.3s - CO - 3 mn - CO
			O-0.3s - Co - 15s - CO
	opening	ms	<50
operating time	breaking	ms	<60
	closing	ms	<65
	class		M2 ⁽²⁾ M1 ⁽¹⁾
mechanical endurance	number of operations		20000
electrical endurance	class		E2
	number of operations	25 kA	50/100
		31.5 kA	30
		40 kA	20
capacitive current breaking			C1 class

Electrical characteristics according to IEC 60056

circuit breaker		7V1	7V1	7V1	7V2	7V2	7V2	7V3	7V3	7V3
		630	1250	2500	630	1250	2500	630	1250	2500
rated voltage	Ur (kV) rms	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
rated insulation voltage	Ud (kV) rms	20	20	20	20	20	20	20	20	20
rated insulation voltage	Up (kV) peak	60	60	60	60	60	60	60	60	60
rated short-circuit breaking current	Isc (kA) rms	25	25	25	31.5	31.5	31.5	40	40	40
rated normal current (-25°C + 40°C)	I _r (A) rms	630	1250	2500	630	1250	2500	630	1250	2500
climatic version	-25°C + 40°C	■	■	■	■	■	■	■	■	■

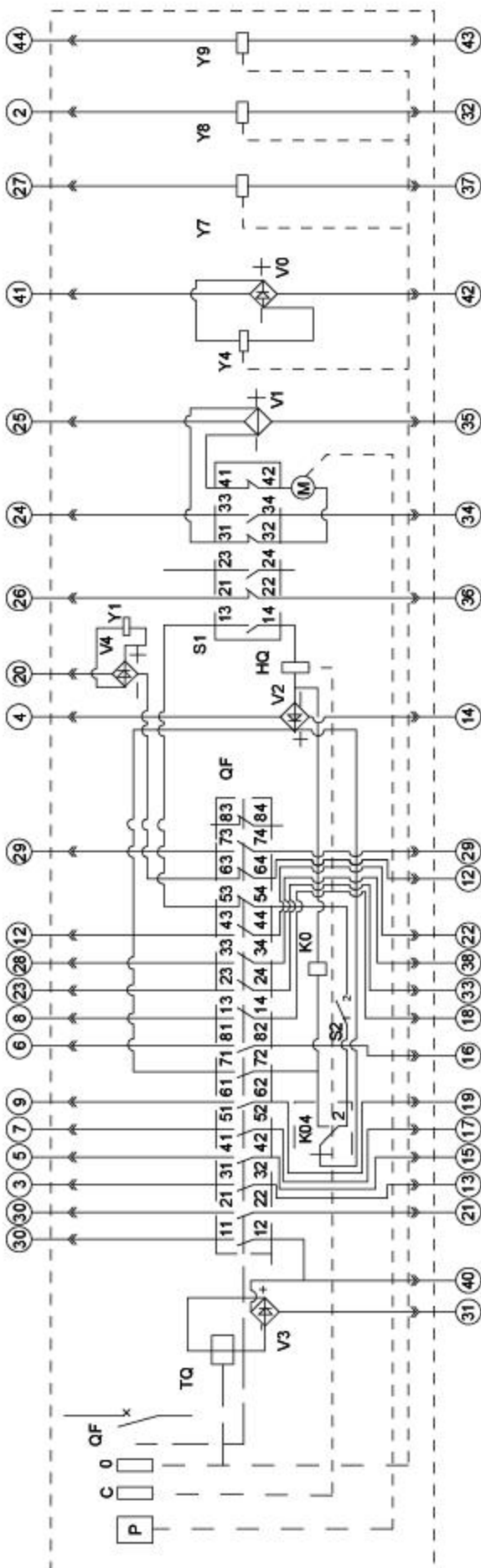
Installation and connections

dimensions CB (mm)	width (W)	640	640	640	640	640	640	640	640	640
	depth (D)	590	590	590	590	590	590	590	590	590
	height (H)	630	630	630	630	630	630	630	630	630

12V1	12V1	12V1	12V1	12V2	12V2	12V2	12V2	12V3	12V3	12V3
630	1250	1600	2500	630	1250	1600	2500	630	1250	2500
12	12	12	12	12	12	12	12	12	12	12
28	28	28	28	28	28	28	28	28	28	28
75	75	75	75	75	75	75	75	75	75	75
25	25	25	25	31.5	31.5	31.5	31.5	40	40	40
630	1250	1600	2500	630	1250	1600	2500	630	1250	2500
■	■	■	■	■	■	■	■	■	■	■

640	640	640	640	640	640	640	640	640	640	640
590	590	590	590	590	590	590	590	590	590	590
630	630	630	630	630	630	630	630	630	630	630

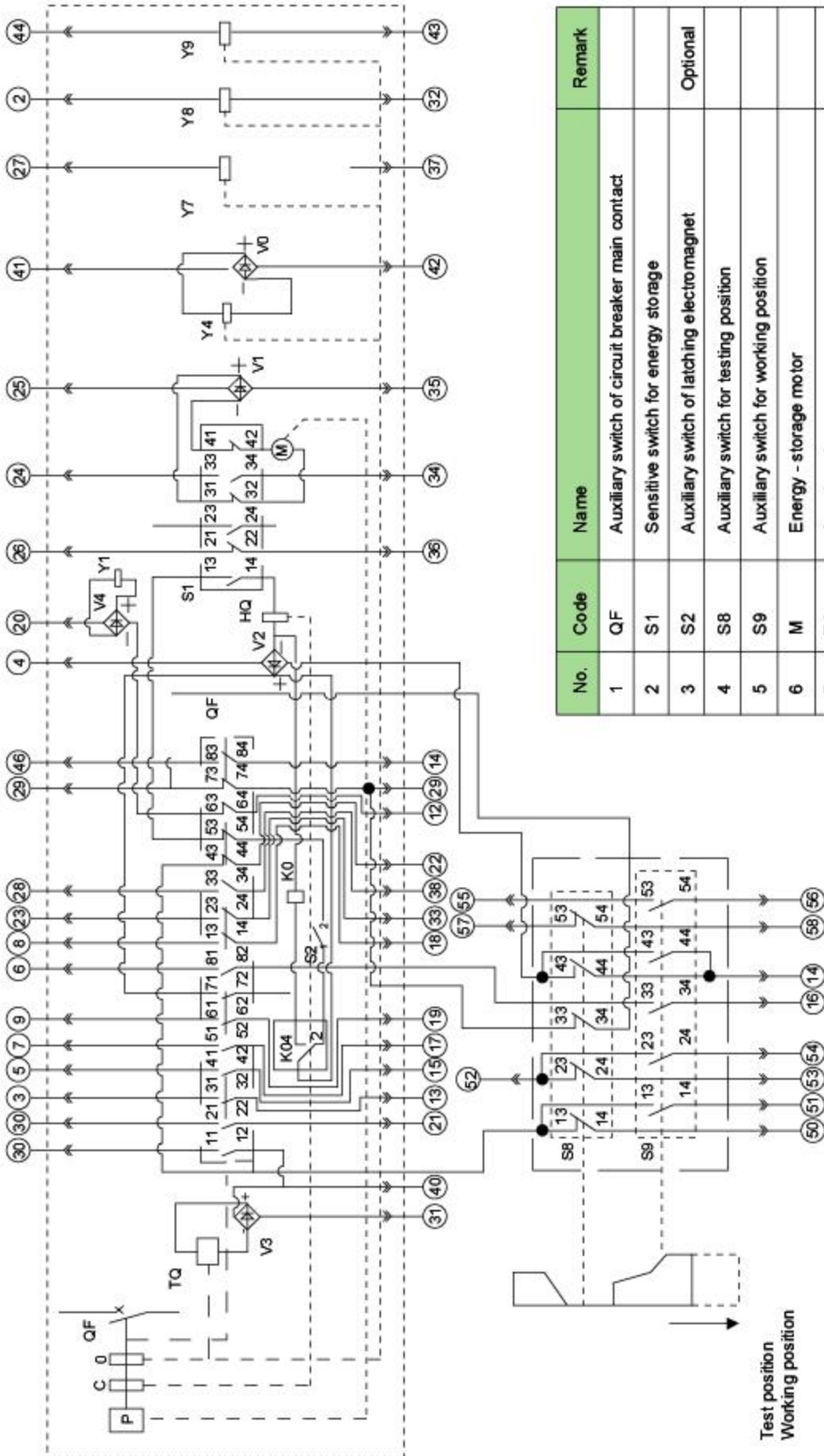
NB: Data & characteristics mentioned above are subject to change due to development / design modifications.



N0.	Code	Name	Remark
1	QF	Auxiliary switch of circuit breaker main contact	
2	S1	Sensitive switch for energy storage	
3	S2	Auxiliary switch of latching electromagnet	Optional
4	M	Energy-storage motor	
5	TQ	Opening electromagnet	
6	HQ	Closing electromagnet	
7	Y1	Latching electromagnet	Optional
8	P	Manual operating mechanism	
9	K0	Inner anti-trip relay mechanism	
10	V0-V4	Rectifier element	
11	Y4	Low voltage release	Optional
12	Y7-Y9	Indirect over current release	Optional

Electric connection diagram of fixed circuit breaker

Electric connection diagram of draw-out type circuit breaker



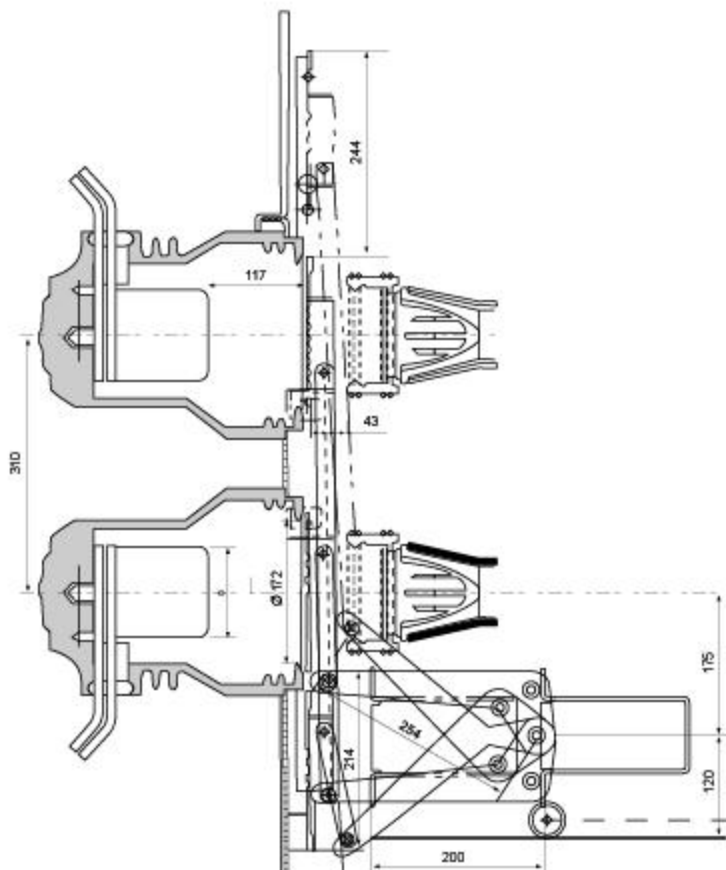
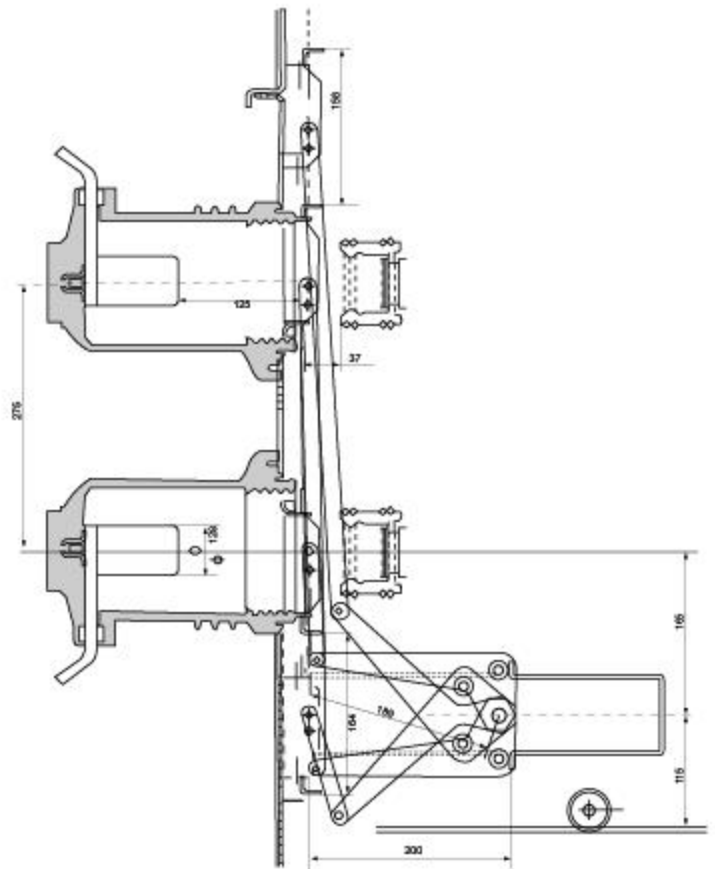
No.	Code	Name	Remark
1	QF	Auxiliary switch of circuit breaker main contact	
2	S1	Sensitive switch for energy storage	
3	S2	Auxiliary switch of latching electromagnet	Optional
4	S8	Auxiliary switch for testing position	
5	S9	Auxiliary switch for working position	
6	M	Energy - storage motor	
7	TQ	Opening electromagnet	
8	HQ	Closing electromagnet	
9	Y1	Latching electromagnet	Optional
10	P	Manual operating mechanism	
11	K0	Inner anti - trip relay mechanism	
12	V0 - V4	Rectifier element	
13	Y7 - Y9	Indirect over current release	Optional
14	Y4	Low voltage release	Optional

Vacuum circuit breaker

V range

Dimension of circuit breaker and cabinet of 800 width

Rated current (A)	Rated short-circuit breaking current KA	Applicable static contact size (mm)
630A	20, 25KA	φ 35 mm
1250A	20, 25, 31.5, 40KA	φ 49 mm
1600A	31.5, 40KA	φ 55 mm



Dimension of circuit breaker and cabinet of 1000 width

Rated current (A)	Rated short-circuit breaking current KA	Applicable static contact size (mm)
1600, 2000A	31.5, 40KA	φ 35 mm
2500A	31.5, 40KA	φ 109 mm
3150A	31.5, 40KA	φ 109 mm