DECLARTION

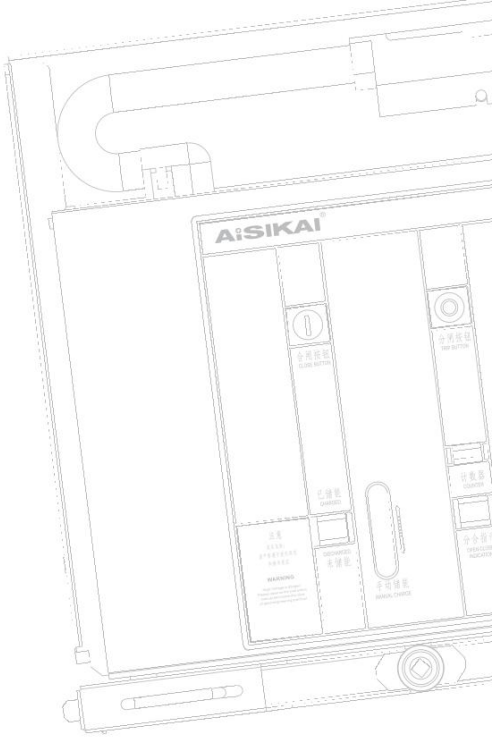
All rights reserved. Without the written permission of our company, any paragraph or section of this manual must not be excerpted, copied or reproduced, disseminated in any form, otherwise all consequences will be borne by the offender. Our company reserves all legal rights.
Our company reserve the right to change the specifications of the products described in this manual without prior notice. Before ordering, please contact your local distributor for the latest specifications of this product.

AISIKEAI-2024VCBSG-V1.3

Ⓒ AISIKAI ELECTRIC COPYRIGHT

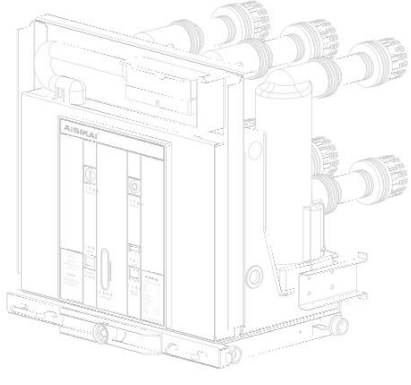
Wechat Contact

AiSIKAI®
POWER THE FUTURE





VACUUM CIRCUIT BREAKER
SELECTION GUIDE



JAINGSU AISIKAI ELECTRIC CO., LTD.
Tel：+86-514-83872777 83872888
Fax：+86-514-83872000
Free Service Telephone：800-828-6568
E-mail：aisikai@aisikai.cc
Web:www.aisikaigroup.com
Factory Add：NO.5 Chuangye Road,Chenji Industrial Zone, Yizheng City,Jiangsu Province China

JIANGSU AISIKAI ELECTRIC CO.,LTD.

AiSIKAI®
POWER THE FUTURE





HIGH VOLTAGE POWER DISTRIBUTION PRODUCTS


VCB · ASKV5 SERIES


VCBRP · ASKPM SERIES


VCBRP · ASKPZ SERIES

LOW VOLTAGE POWER DISTRIBUTION PRODUCTS


ACB · ASKW1 SERIES


ACB · ASKW2 SERIES


MCCB · ASKM1 SERIES


MCCB · ASKM3 SERIES


ATS ·SKT SERIES


ATS ·ASKQ2 SERIES


ATS ·ASKQ6 SERIES


ATS ·ASKQ8 SERIES


MCB ·ASKB1 SERIES


MCB ·ASKB2 SERIES


MCB ·ASKB5 SERIES


MCB ·ASKB6 SERIES


LIS ·ASKG2 SERIES


LIS ·ASKG5 SERIES

POWER QUALITY PRODUCTS


PFP · ASKIC SERIES


PFP · ASKICL SERIES


PFP · ASKJKW SERIES


PFP · ASKFK SERIES


PFP · ASKTSC SERIES


PFP · ASKCKDG SERIES


PFP · ASKBSMJ SERIES


AFP · ASKAPF SERIES


AFP · ASKSVG SERIES


AFP · ASKSVGC SERIES

INDUSTRIAL CONTROL AND PROTECTION DEVICE


CPS · SKCPS SERIES


MCM · ASKHM1 SERIES


ATSC · SKR2 SERIES


AIATMTC· SKR3 SERIES


VPS ·SKP SERIES


SPD ·SKD SERIES


SPD ·SKD-SCB SERIES


IBC ·BAC SERIES

INTELLIGENT SYSTEM PRODUCTS


IEM · ASKD SERIES


ILCS · ASKZM SERIES


PLCP · AICLOUD SERIES

PLMS · AISCADA SERIES

IPM · ASKY SERIES

400-828-8338

Wechat Contact

PRODUCTS CONTENTS

01	PRODUCT OVERVIEW
03	PRODUCT SELECTION
04	**SLEEVE COUPLING TYPE INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKER OVERVIEW**
06	MAIN TECHNICAL PARAMETERS
08	SLEEVE COUPLING TYPE VACUUM CIRCUIT BREAKER OUTLINE AND INSTALLATION DIMENSIONS
13	SOLID-SEALED POLAR POLE TYPE INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKER OVERVIEW
15	**SOLID-SEALED POLAR POLE TYPE INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKER OUTLINE AND INSTALLATION DIMENSIONS**
20	ORDERING TECHNICAL SPECIFICATION
21	ELECTRICAL SCHEMATIC DIAGRAM AND SECONDARY WIRING DIAGRAM
29	**ASKV5-40.5 SERIES INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKER**
30	MAIN TECHNICAL PARAMETERS
32	ELECTRICAL SCHEMATIC DIAGRAM

COMPANY PROFILE

Since established in 2007, AISIKAI has been committed to the manufacture, research, development and marketing of the high-quality high and low voltage electric switches. Our product lines cover level Ⅰ,Ⅱ,Ⅲ power distribution fields. We are awarded as the National High Tech Enterprise, Double-Soft Certified Enterprise (i.e., software product certified and software enterprise certified), Little Giant Science and Technology Enterprise of Jiangsu Province, and Contract-keeping and Trustworthy Enterprise. We have invention patents, utility model patents and appearance patents. All of AISIKAI products have China Compulsory Certification (CCC) and China Quality Certification (CQC). From 2014, we have been recognized as Yangzhou City Engineering Technology Center and National Adopting International Standard Enterprise.

AISIKAI products have CE certification and IEC CB certification. We have passed the ISO9001 Quality Management System and ISO14001 Environment Management System, ISO45001 Occupational Health Management System, and SGS Global Qualified Supplier Authentication.

QUALITY, SERVICE, REPUTATION, INNOVATION is AISIKAI's unchanging company principle. We're always eager to make progress to offer reliable products and impeccable services. With your support and trust, AISIKAI will thrive and work towards a brighter future





VACUUM CIRCUIT BREAKER

AiSIKAI®
POWER THE FUTURE



VCB

INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKER

INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKER

OVERVIEW

ASKV5 series indoor high voltage vacuum circuit breaker (abbreviated as VCB) is the next generation vacuum circuit breaker independently developed and manufactured by our company which is competitive in the industry. VCB is used for AC 50Hz and rated voltage 12kV, 24KV, 40.5KV indoor device, suitable for a variety of different loads and frequent operation sites. VCB has an independently developed new type spring operating mechanism with simple mechanism and reliable operation.

Over the years, we have been specializing in the design, R&D and the professional manufacturing of the low voltage electric products. Oriented by the satisfaction and expectations of customers, we continuously improve product performance on the condition of safety and reliability. We use advanced automated assembly lines to ensure the timely delivery to customers. We observe strict quality standards to ensure that each product is qualified.



OVERVIEW

Classified by the structure: Handcart type, Fixed type,side-mounted type floor-standing type



Handcart type



Fixed type

APPLICATIONS



Industrial Commercial Civil

STANDARDS

GB1984-2003
JB3855-2004
GB/T11022-1999
DL403
IEC62271-100
IEC56















Side-mounted type

APPLICATION SCOPE

VCB are widely used in power plants, power grids, metallurgy, petrochemical, urban infrastructure such as airports, buildings, subway and other projects. In the power distribution system, VCB can be applied to control andprotect cables, overhead lines, transformers, engines, generators and capacitor sets.

STANDARDS

The technical parameters of VCB fully comply with GB1984, GB/T11022 and Chinese electric power industry standard DL403, and also meet the provisions of IEC62271-100, IEC56 standard specification and other major industrialized countries' relevant standards.

OPERATION SAFETY

VCB have perfect mechanical and electrical interlocking devices. VCB have high operation reliability and long service life. When working with the matched cabinets, VCB can complete the safe power distribution function, ensuring the safety of operators and equipment.

TESTS

VCB have passed the following tests to ensure their safe operation under normal operating conditions.

Type test: power frequency withstand voltage, lightning impulse withstand voltage, temperature rise, short-time and peak withstand current, short-circuit current breaking/closing capability and cable charging current breaking/closing test.

Factory routine test: mechanical characteristics test, main circuit power frequency withstand voltage test, auxiliary and control circuit insulation performance test, main circuit resistance test, interlocking operation test, mechanical and electrical operation test.



Floor-standing type

ASKV5 SERIES INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKER SELECTION TABLE

Product code	Function code	Rated voltage	Rated short-time withstand current
Vacuum circuit breaker	G: Solid-sealed Polar Pole Type T: Sleeve Type	12kV/24kV/40.5kV	20kA/25kA/31.5kA/40kA

ASK	V	5	G	–	12kV	/	1600A	/	31.5kA

Company name	Design code	Rated current
AISIKAI ELECTRIC		630/1250/1600/2000/2500/3150/4000A

Design marking	Model description 1:
	ASKV5G-12kV/1600A/20kA 1.Indoor high voltage vacuum circuit breaker 2.Fixed type 3.Rated voltage 12kV 4.Rated current 1600A 5.Rated short-time withstand current 20KA

QUALIFICATION DOCUMENTS



Test Report



Patent



Patent

SLEEVE COUPLING TYPE INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKER

SLEEVE COUPLING TYPE STRUCTURE OVERVIEW





▶ The vacuum arc extinguish chamber of the ASKV5 series sleeve coupling type indoor high voltage AC vacuum circuit breaker's main circuit is positioned in the enclosed insulating cylinder. The insulating cylinder is made of epoxy resin with reliable mechanical and electrical performance. The cylinder is moulded adopting the advanced automatic pressure gelation (APG) process. The cylinder functions not only a support, and also as insulation between phase and phase, between phase and ground.

The design of the insulating cylinder fully takes into account the requirements of the national standard and the harsh working conditions. It can not only prevent the vacuum arc extinguish chamber from being affected by the external environment, but also prevent dust and foreign matter from entering the main circuit. It also ensures that even in humid, hot and heavily polluted environments, it presents a high resistance state to the voltage effect.

APPLICATION SCOPE

▶ VCB are widely used in power plants, power grids, metallurgy, petrochemical, urban infrastructure such as airports, buildings, subway and other projects. In the power distribution system, VCB can be applied to control and protect cables, overhead lines, transformers, engines, generators and capacitor sets.

TESTS

VCB have passed the following tests to ensure their safe operation under normal operating conditions.

▶ Type test: power frequency withstand voltage, lightning impulse withstand voltage, temperature rise, short-time and peak withstand current, short-circuit current breaking/closing capability and cable charging current breaking/closing test.

▶ Factory routine test: mechanical characteristics test, main circuit power frequency withstand voltage test, auxiliary and control circuit insulation performance test, main circuit resistance test, interlocking operation test, mechanical and electrical operation test.

OPERATION SAFETY

▶ VCB have perfect mechanical and electrical interlocking devices. VCB have high operation reliability and long service life. When working with the matched cabinets, VCB can complete the safe power distribution function, ensuring the safety of operators and equipment.

STANDARDS

▶ The technical parameters of VCB fully comply with GB1984, GB/T11022 and Chinese electric power industry standard DL403, and also meet the provisions of IEC62271-100, IEC56 standard specification and other major industrialized countries' relevant standards.

OPERATION MECHANISM INTRODUCTION



1.Circuit board



Modular secondary control circuit board, with self-fastening plug-in fittings makes it convenient to replace and electrical connections reliable.

2.Closing electromagnet



Fully enclosed structural design to protect coil from dampness and reduce the tripping work needed for opening.

3.Surface treatment



80% of the machine parts are plated with Ni-P alloy, which greatly improves the parts' anti-corrosion ability and ensures the consistent and stable quality of the machine.

4.Closing unit



The switching unit is simple in structure and reliable in operation. It not only fundamentally prevents the faults such as failure to maintain and refuse to open after close, but also reduce the tripping work needed for opening.

5.Opening buffer



High-performance buffer can reduce the amplitude of over-swing or rebound of contacts when the circuit breaker is opening, reduce the probability of arc re-burning when the circuit breaker is opening, and ensure the mechanical service life of vacuum arc extinguish chamber.

6.Overall advantages



The operation mechanism is simple in structure and reliable in action. The parts of different specifications are versatile. Since this mechanism is completely developed by our company, we can customize special products according to users' requirements.

MAIN TECHNICAL PARAMETERS

Item		Unit	Technical parameters							
Rated voltage		kV	12					24		
Rated insulation level	Rated short-time power frequency withstand voltage(1min)	kV	42					65		
	Rated lightning impulse withstand voltage (peak)	kV	75					125		
Rated frequency		Hz	50					50		
Rated current		A	630 1250	630 1250	1250 1600 2000 2500 3150 4000	1250 1600 2000 2500 3150 4000	3150 4000 5000	630 1250	630 1250	1250 1600 2000 2500 3150
Rated short-circuit breaking current		kA	20	25	31.5	40	50	20	25	31.5
Rated short-time withstand current		kA	20	25	31.5	40	50	20	25	31.5
Rated peak withstand current		kA	50	63	80	100	125	50	63	80
Rated short-circuit closing current (peak)		kA	50	63	80	100	125	50	63	80
4s thermal stable current		kA	20	25	31.5	40	50	20	25	31.5
Rated dynamic stable current		kA	50	63	80	100	125	50	63	80
Rated capacitor set closing surge current		kA	12.5 (frequency not higher than 1000Hz)							
Rated single/back-to-back capacitor set breaking current		A	630 / 400							
Rated short-circuit duration		S	4							
Secondary circuit power frequency withstand voltage		V	2000							
Rated operational voltage	Closing coil	V	AC 110 / 220 DC110 / 220					AC 110 / 220 DC110 / 220		
	Opening coil	V	AC 110 / 220 DC110 / 220							
	Energy storage motor	V	AC 110 / 220 DC 110 / 220							
Opening time (rated voltage)		ms	20~50					≤45		
Closing time (rated voltage)		ms	30~70					≤60		
The allowable wear cumulative thickness of moving and fixed contacts		mm	3							
Energy storage Time		s	≤15					≤15		
Contact opening distance		mm	9±1 (630A~1250A)		11±1(1250A~4000A)			13±1		
Overtravel		mm	3~4					4±1		
Contact closing bounce Time		ms	≤2							
Three phase opening/closing non-synchronous characteristic		ms	≤2							
Average opening speed		m/s	0.9~1.3					1.1~1.7		
Average closing speed		m/s	0.4~0.8		0.5~0.9 (side-mounted)			0.6~1.1		
Contact opening rebound amplitude		mm	≤2		≤3(side-mounted)			≤3		
Main conductive circuit resistance		μΩ	≤55 (630A)		≤45(630A side)			Rated current	handcart type	fixed type
			≤45 (1250A)		≤40(1250A side)			630~1250A	≤60	≤50
			≤35 (1600A~2000A)					1600~2000A	≤35	≤30
			≤25 (2500Aabove)					(2500Aabove)	≤25	≤20

Contact closing contact pressure	N	2000±200(20KA)	
		2400±200(25KA)	
		3100±200(31.5KA)	
		4750±200(40KA)	
Rated operation sequence		O-0.3s-CO-180s-CO	
Mechanical life	times	30000 (31.5kAand below)	20000
		20000 (40kAand above)	

1.The average opening speed refers to the average speed of the breaker contact just after opening 6mm.

2.①v12kV circuit breaker: the average closing speed refers to the average speed of the breaker contact before closing 8mm

②24kV circuit breaker : the average closing speed refers to the average speed of the circuit breaker contacts full opening distance.

3.When the rated short-circuit breaking current < 40kA, θ =0.3s, When the rated short-circuit breaking current is ≥40kA, θ =180s.

Energy Storage Motor Technical Parameters(Sleeve Coupling Type)

Model	Rated voltage	Rated input power(W)		Normal operation voltage range	Energy storage time at rated voltage(S)
		12kV	24kV		
ZYJ55-1	DC110V	75,100	70 ,100	85%~110%rated voltage	≤15
	DC220V				

Energy Storage Motor Technical Parameters(Solid-sealed Type)

Model	Rated voltage	Rated input power(W)		Normal operation voltage range	Energy storage time at rated voltage(S)
		12kV	24kV		
ZYJ55-1	DC110V	70 ,100		85%~110%rated voltage	≤15
	DC220V				

Technical Parameters of Closing and Opening Electromagnets and Related Electrical Components

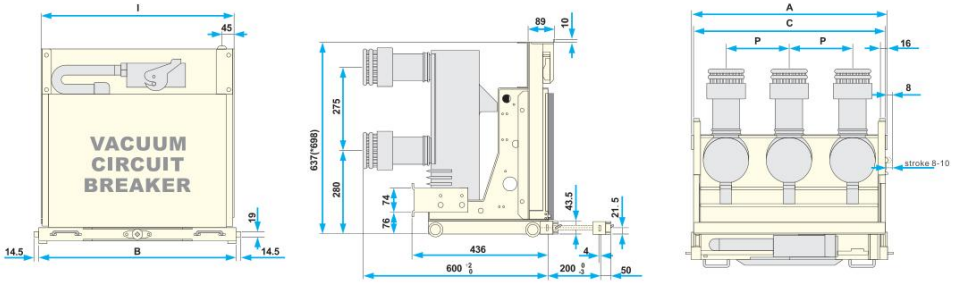
Item / category	Closing electromagnet		Opening electromagnet		Locking electromagnet		Anti-tripping relay	
Rated operational voltage(V)	DC220	DC110	DC220	DC110	DC220	DC110	DC220	DC110
Rated operational current(A)	1.1	2.2	1.1	2.2	25mA		9.1mA	
Rated power(W)	242	242	242	242	2.7		1.0	
Normal operational voltage range	85%~110% rated voltage		65%~120% rated voltage; If at voltage lower than 30% of rated voltage, the switch cannot open.		–		–	

Secondary Control Circuit Solution Portfolio

Control voltage	Locking solution	Anti-tripping solution	Under-voltage tripping solution	Over-current tripping solution		
				With over-current tripper	Number of over-current trippers	Action current value
AC220V	With electrical locking	With anti-tripping relay	With under-voltage tripper		2 units/3 units	3.5/5
DC220V						
AC110V	Without electrical locking	without anti-tripping relay	Without under-voltage tripper	Without over-current tripper		
DC110V						

SLEEVE COUPLING TYPE VACUUM CIRCUIT BREAKER OUTLINE AND INSTALLATION DIMENSIONS

12kV Low Current Handcart Vacuum Circuit Breaker Outline Dimensions(630A~1600A)



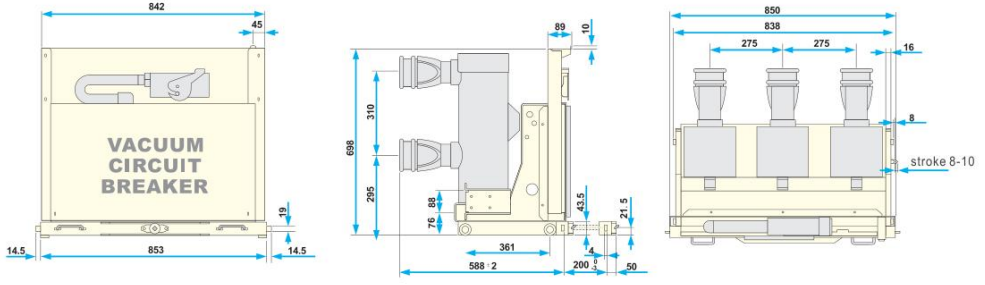
Rated current(A)	Rated short-circuit breaking current(KA)	P(mm)	A(mm)	B(mm)	C(mm)	I(mm)	Supporting cabinet width (mm)
630~1250	20~40	150	502	503	492	492	650
630~1600		210	650	653	640	638	800
		275	850	853	838	842	1000

	Rated current(A)	Star shaped contact	Static contact size(mm)
Moving and static contact fit size	630	CT-24	Ø35
	1250	CT-30	Ø49
	1600	CT-36	Ø55

1.Main circuit adopts sleeve coupling type

2.In the diagram (*698) is an optional solution for the height of the sealing plates with phase spacing 275

12kV High Current Handcart Vacuum Circuit Breaker Outline Dimensions(1600A~5000A)

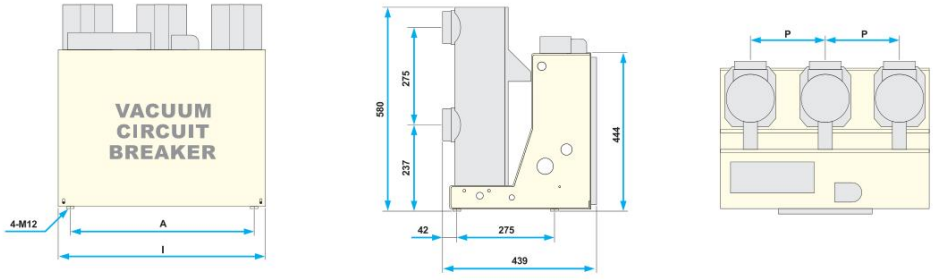


Rated current(A)	Rated short-circuit breaking current(KA)	Supporting cabinet width (mm)
1600~4000	25~40	1000

Main circuit adopts sleeve type;

	Rated current(A)	Star shaped contact	Static contact size(mm)
Moving and static contact fit size	1600~2000	CT-48	Ø79
	2500~3150	CT-64	Ø109
	4000	CT-82	
	5000	CT-96	

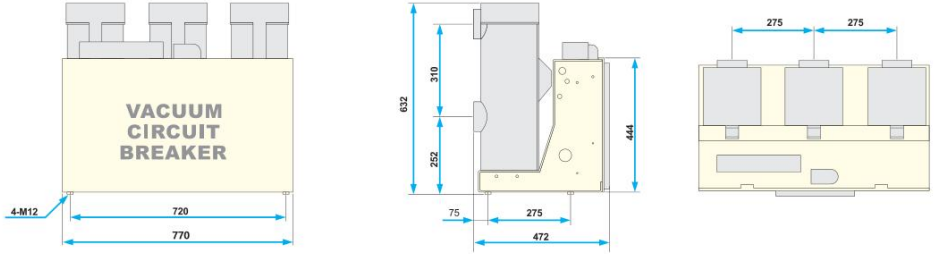
12kV Low Current Fixed Vacuum Circuit Breaker Outline Dimensions(630A~1600A)



Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	I(mm)	A(mm)	Supporting cabinet width(mm)
630~1600	20~40	210	588	520	800
		275	770	720	1000

Main circuit adopts sleeve type.

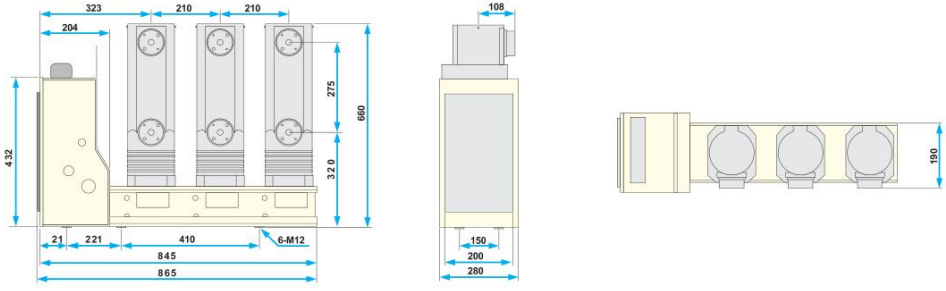
12kV high current handcart vacuum circuit breaker dimensions(1600A~4000A)



Rated current(A)	Rated short-circuit breaking current(kA)
1600~5000	25~40

Main circuit adopts sleeve type

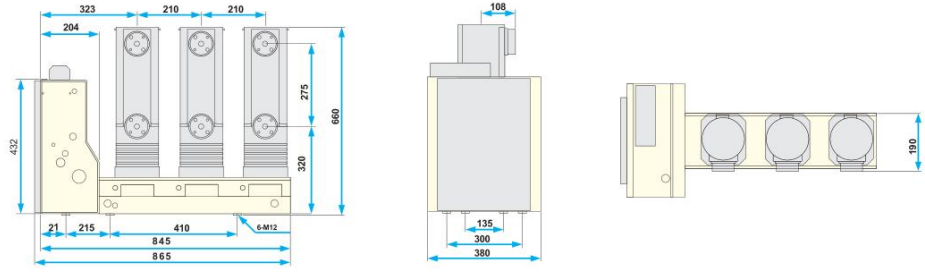
12kV (A) side mounted vacuum circuit breaker (fixed type) dimensions(630A~1600A)



Rated current(A)	Rated short-circuit breaking current(kA)	Supporting cabinet width(mm)
630~1600	20~40	280

Main circuit adopts sleeve type

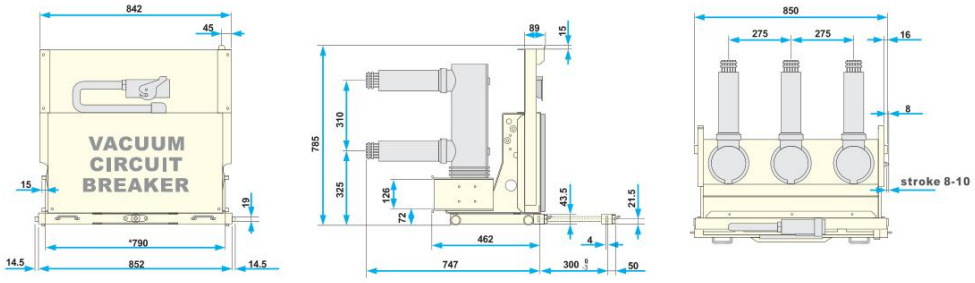
12kV (B) side mounted vacuum circuit breaker (fixed type) dimensions(630A~1250A)



Rated current(A)	Rated short-circuit breaking current(kA)	Supporting cabinet width(mm)
630~1250	20~40	380

Main circuit adopts sleeve type

24kV Handcart Vacuum Circuit Breaker Outline Dimensions(630A~1600A)

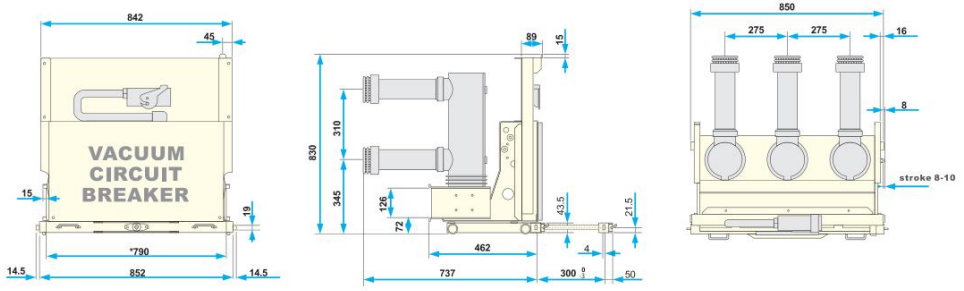


Rated current(A)	Rated short-circuit breaking current(KA)	Supporting cabinet width (mm)
630	40 and below	1000
1250		
1600		

	Rated current(A)	Star shaped contact	Static contact size(mm)
Moving and static contact fit size	630	CT-24	Ø35
	1250	CT-30	Ø49
	1600	CT-36	Ø55

Main circuit adopts sleeve type

24kV Handcart Vacuum Circuit Breaker Outline Dimensions(1600A~3150A)

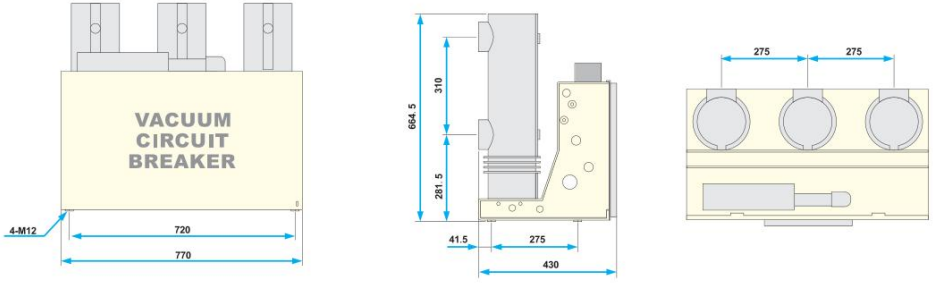


Rated current(A)	Rated short-circuit breaking current(KA)	Supporting cabinet width(mm)
2000/2500	40	1000
2500/3150		

	Rated current(A)	Star shaped contact	Static contact size(mm)
Moving and static contact fit size	1600/2000	CT-48	Ø79
	2500/3150	CT-64	Ø109

Main circuit adopts sleeve type

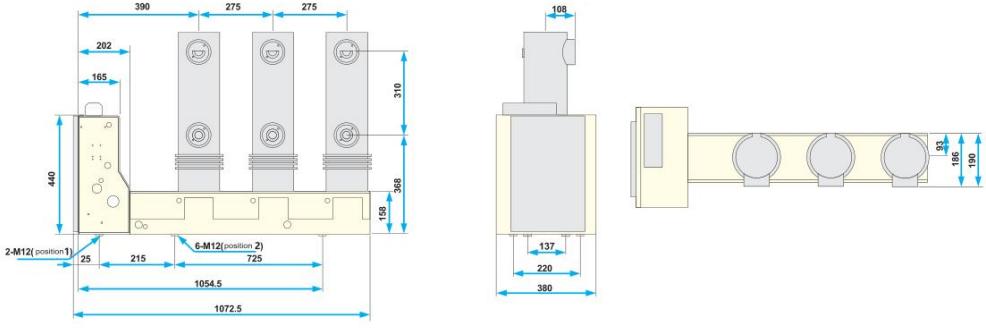
24kV Fixed Vacuum Circuit Breaker Outline Dimensions(630A~1600A)



Rated current(A)	Rated short-circuit breaking current(KA)	Supporting cabinet width(mm)
630/1250/1600	40 and below	1000

Main circuit adopts sleeve type

24kV Side-mounted Vacuum Circuit Breaker(Sleeve Coupling) Dimensions(630A~1250A)



Rated current(A)	Rated short-circuit breaking current(KA)	Supporting cabinet width(mm)
630~1250	20~40	380

Main circuit adopts sleeve type

SOLID-SEALED POLAR POLE TYPE INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKER OVERVIEW

Solid-sealed Type Structure Overview





The main electrical circuit is in the form of solid-sealed polar poles using solid insulation method. This is a special embedding technology to achieve solid insulation of the main electrical circuit by casting the vacuum arc extinguisher and conductive parts with ultra-low resistance value in epoxy resin. The operating mechanism is a new type of spring operating mechanism.

Structure introduction

Solid-sealed structure: the primary main circuit of circuit breaker uses solid-sealed polar poles with solid insulation technology. The solid-sealed polar poles. The vacuum arc extinguisher and other parts of the primary conductive circuit are sealed directly in a special epoxy resin material using advanced automatic pressure gelation (APG) process to form a main electrical circuit module. Double skirt design is used at the mounting end of the solid-sealed polar pole. The polar pole has the characteristics of large creepage ratio distance, high mechanical strength, high precision of parts, small number of parts, without secondary adjustment and small lap surface. The electric field distribution of the poles is uniform, avoiding the damage to the organic insulation caused by the local electric field concentration. What's more, this structure design can simplify the assembly process of primary main circuit, completely avoid the problem of loosening the primary main circuit connection bolts due to vibration in operation, ensure the high reliability of the primary main circuit connection, and make it possible to realize the maintenance-free primary main circuit of the circuit breaker.

Tests

VCB have passed the following tests to ensure their safe operation under normal operating conditions.

Type test: power frequency withstand voltage, lightning impulse withstand voltage, temperature rise, short-time and peak withstand current, short-circuit current breaking/closing capability and cable charging current breaking/closing test.

Factory routine test: mechanical characteristics test, main circuit power frequency withstand voltage test, auxiliary and control circuit insulation performance test, main circuit resistance test, interlocking operation test, mechanical and electrical operation test.

Applied standard

GB1984-2003
JB3855-2004
GB/T11022-1999
DL403
IEC62271-100
IEC56

OPERATION MECHANISM INTRODUCTION

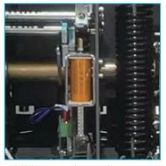


1.Circuit board



Modular secondary control circuit board, with self-fastening plug-in fittings makes it convenient to replace and electrical connections reliable.

2.Closing electromagnet



Fully enclosed structural design to protect coil from dampness and reduce the tripping work needed for opening.

3.Surface treatment



80% of the machine parts are plated with Ni-P alloy, which greatly improves the parts' anti-corrosion ability and ensures the consistent and stable quality of the machine.

4.Closing unit



The switching unit is simple in structure and reliable in operation. It not only fundamentally prevents the faults such as failure to maintain and refuse to open after close, but also reduce the tripping work needed for opening.

5.Opening buffer



High-performance buffer can reduce the amplitude of over-swing or rebound of contacts when the circuit breaker is opening, reduce the probability of arc re-burning when the circuit breaker is opening, and ensure the mechanical service life of vacuum arc extinguish chamber.

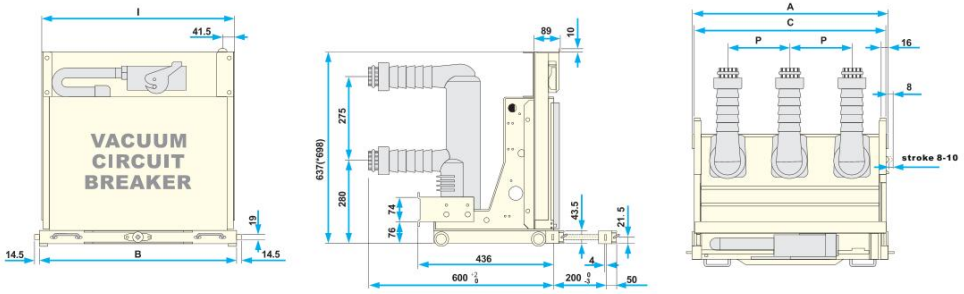
6.Overall advantages



The operation mechanism is simple in structure and reliable in action. The parts of different specifications are versatile. Since this mechanism is completely developed by our company, we can customize special products according to users' requirements.

SOLID-SEALED POLAR POLE TYPE INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKER OUTLINE AND INSTALLATION DIMENSIONS

12kV Low Current Handcart Vacuum Circuit Breaker Outline Dimensions(630A~1600A)

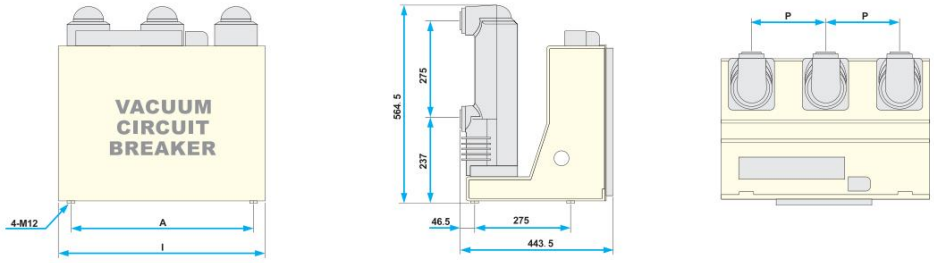


Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	I(mm)	A(mm)	B(mm)	C(mm)	Supporting cabinet width(mm)
630~1600	20~40	210	650	653	640	635	800
		275	850	853	838	842	1000

	Rated current(A)	Star-shaped contact	Static contact size(mm)
Moving and static contact fit size	630	CT-24	Ø35
	1250	CT-30	Ø49
	1600	CT-36	Ø55

1.Main circuit with solid-sealed pole;
2.In the diagram (*698) is an optional scheme for the height of the sealing plates with phase spacing 275.

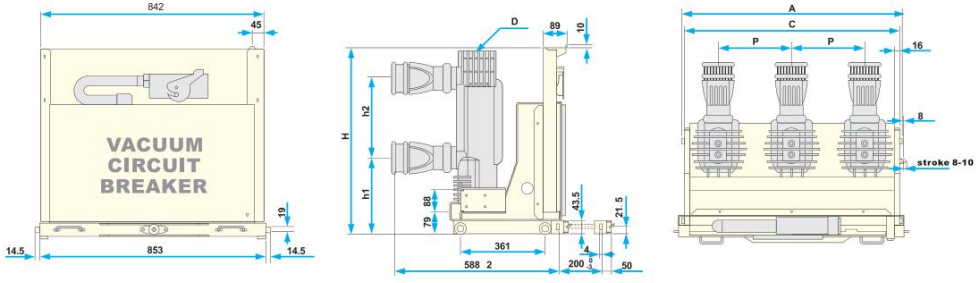
12kV Low Current Fixed Vacuum Circuit Breaker Outline Dimensions(630A~1600A)



Rated current(A)	Rated short-circuit breaking current(KA)	P(mm)	I(mm)	A(mm)	Supporting cabinet width(mm)
630~1600	20~40	210	588	520	800
		275	770	720	1000

Main circuit with solid-sealed pole.

12kV High Current Handcart Vacuum Circuit Breaker Outline Dimensions(1600A~4000A)

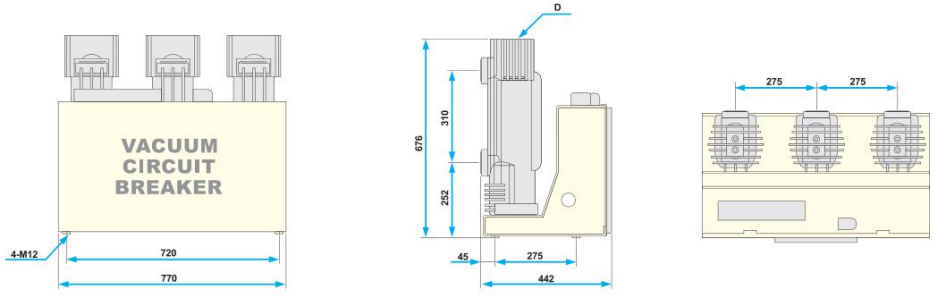


Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	A(mm)	B(mm)	C(mm)	H(mm)	I(mm)	h1/h2(mm)		Supporting cabinet width(mm)
1600~2000	25~40	275	850	853	838	698	842	295/ 310	280/ 310	1000
2500~4000		275	850	853	838	735	842			
*4000	31.5~40									
*5000	40~50									

	Rated current(A)	Star-shaped contact	Static contact size(mm)
Moving and static contact fit size	1600~2000	CT-48	Ø79
	2500~3150	CT-64	Ø109
	4000	CT-82	
	5000	CT-96	

1.Main circuit with solid-sealed pole;
2.When the rated current is 2500A and above, the circuit breaker must have a cooling cover D;
3.Rated current up to 4000A when use forced cold air;
4.* This specification is a special type. Please contact our technician before ordering.

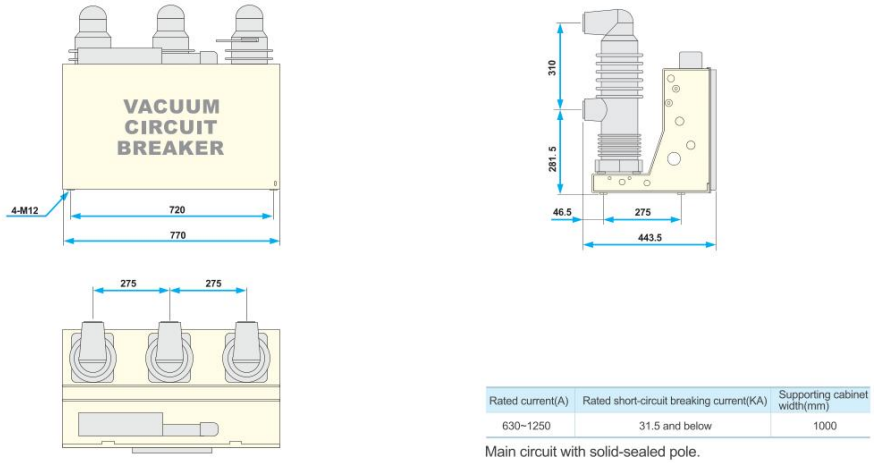
12kV High Current Fixed Vacuum Circuit Breaker Outline Dimensions(1600A~4000A)



Rated current(A)	Rated short-circuit breaking current(KA)
1600~4000	20~40
*4000	31.5~40
*5000	40~50

1.Main circuit with solid-sealed pole;
2.When the rated current is 2500A and above, the circuit breaker must have a cooling cover D;
3.Rated current up to 4000A when use forced cold air;
4.* this specification is a special type. Please contact our technician before ordering..

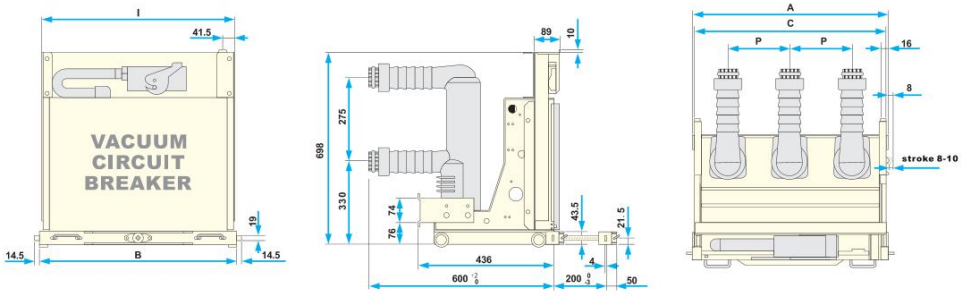
24kV Fixed Vacuum Circuit Breaker Outline Dimensions(630A~1250A)



Rated current(A)	Rated short-circuit breaking current(KA)	Supporting cabinet width(mm)
630~1250	31.5 and below	1000

Main circuit with solid-sealed pole.

12kV Low Current Handcart Vacuum Circuit Breaker Outline Dimensions(630A~1600A) Plateau-type (Altitude2000-4000m)

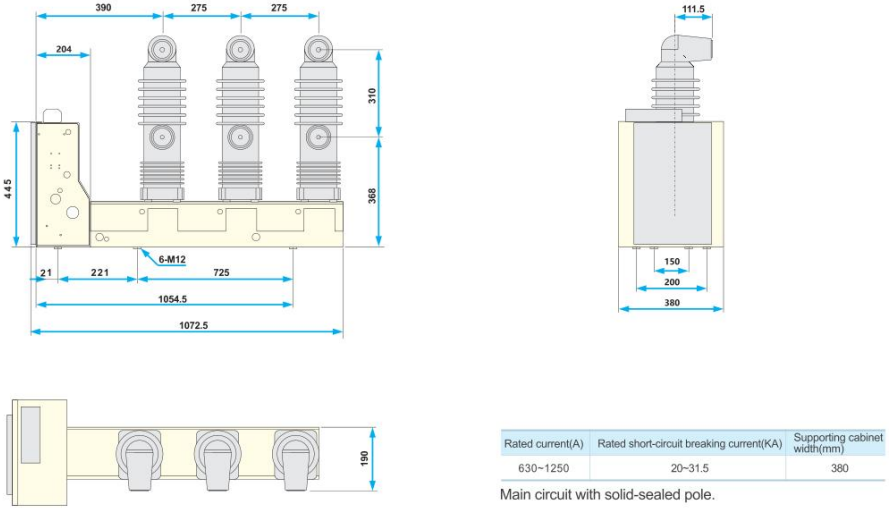


Rated current(A)	Rated short-circuit breaking current(kA)	P(mm)	I(mm)	A(mm)	B(mm)	C(mm)	Supporting cabinet width(mm)
630~1600	25~31.5	275	850	853	838	842	1000

	Rated current(A)	Star-shaped contact	Static contact size(mm)
Moving and static contact fit size	630	CT-24	Ø35
	1250	CT-30	Ø49
	1600	CT-36	Ø55

1.Main circuit with solid-sealed pole;
2.In the diagram (*698) is an optional scheme for the height of the sealing plates with phase spacing 275.

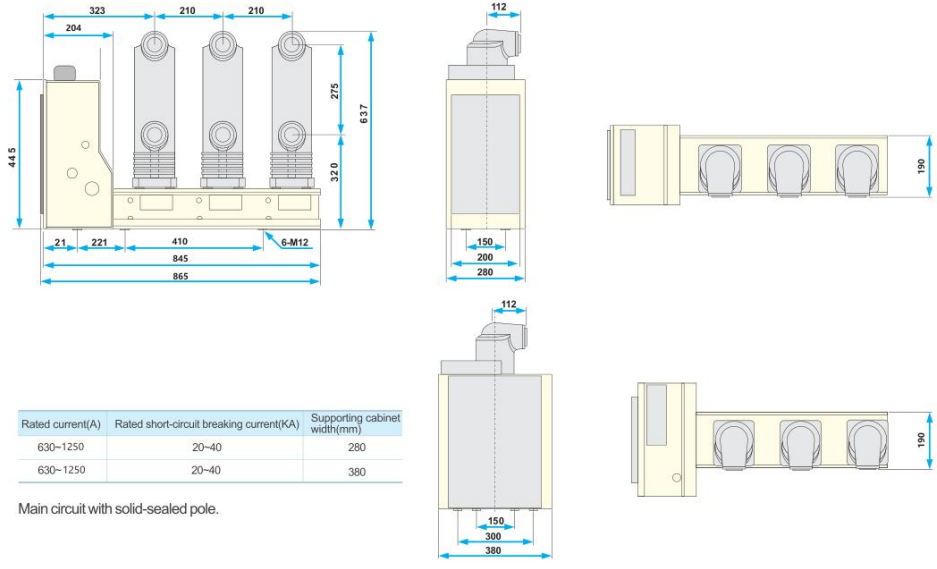
24kV Side-mounted Vacuum Circuit Breaker(Solid-sealed) Outline Dimensions(630A~1250A)



Rated current(A)	Rated short-circuit breaking current(KA)	Supporting cabinet width(mm)
630~1250	20~31.5	380

Main circuit with solid-sealed pole.

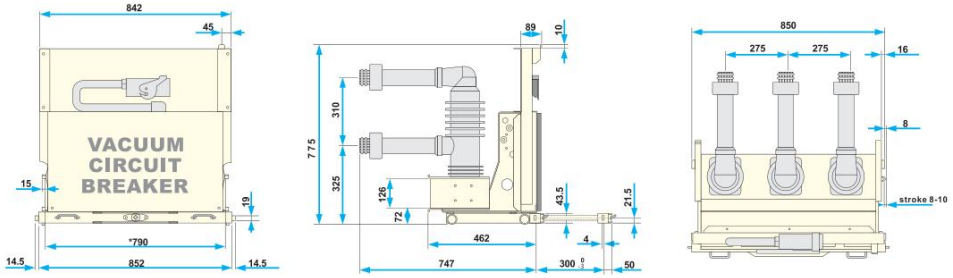
12kV Side-mounted Vacuum Circuit Breaker(Fixed) Outline Dimensions(Type C/D)(630A-1250A)



Rated current(A)	Rated short-circuit breaking current(KA)	Supporting cabinet width(mm)
630~1250	20~40	280
630~1250	20~40	380

Main circuit with solid-sealed pole.

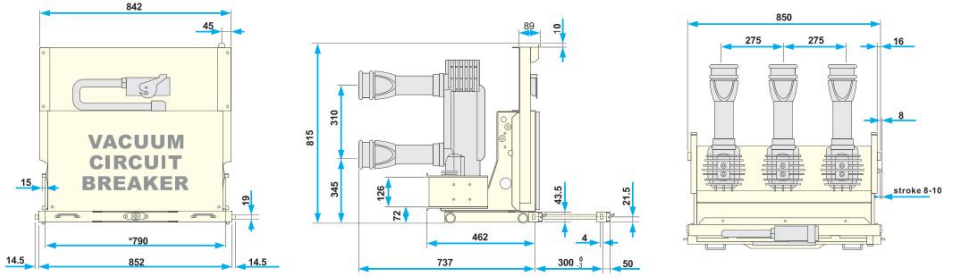
24kV Handcart Vacuum Circuit Breaker Outline Dimensions(630A-1250A)



Rated current(A)	Rated short-circuit breaking current(KA)	Supporting cabinet width(mm)	Moving and static contact fit size	Star-shaped contact	Static contact size(mm)
630	31.5 and below	1000		CT-24	Ø35
1250				CT-30	Ø49

Main circuit with solid-sealed pole.

24kV Handcart Vacuum Circuit Breaker Outline Dimensions(1600A-3150A)



Rated current(A)	Rated short-circuit breaking current(KA)	Supporting cabinet width(mm)	Moving and static contact fit size	Star-shaped contact	Static contact size(mm)
1600	31.5 and below	1000		CT-36	Ø55
1600/2000/2500min				CT-48	Ø79
2500max/3150				CT-64	Ø109

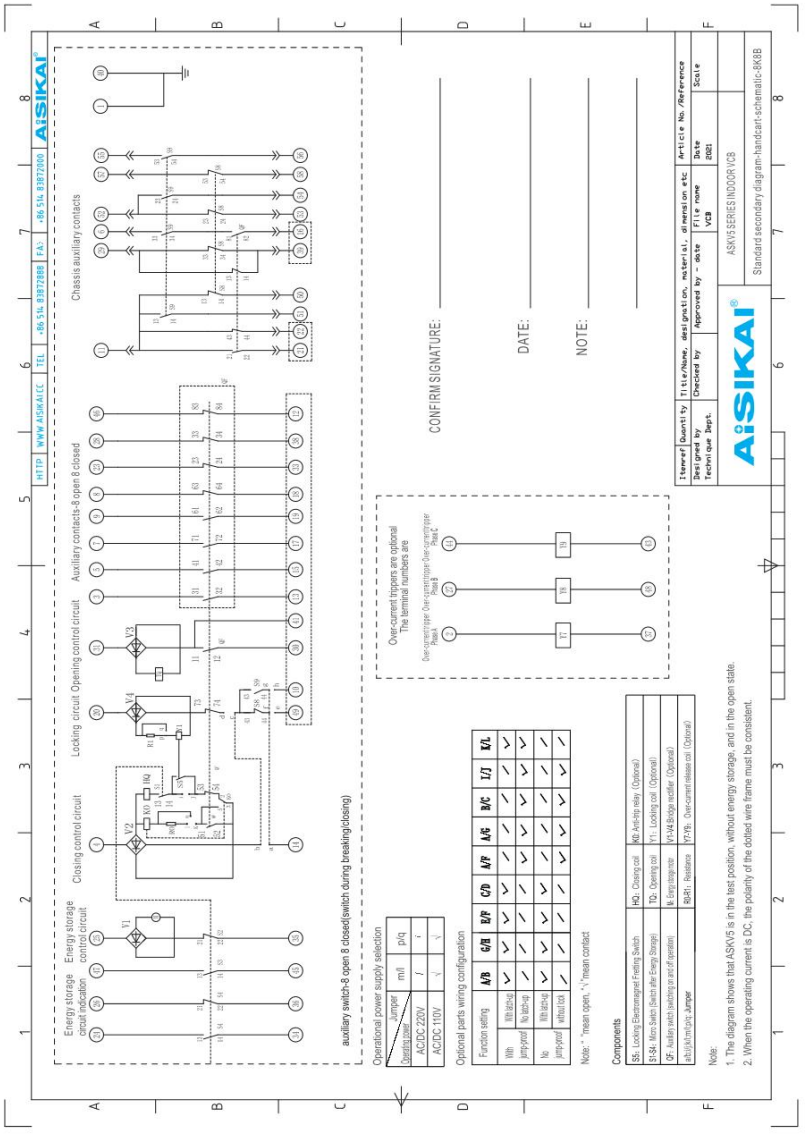
1.Main circuit with solid-sealed pole;
2.*min/max:Representative pole size specification.

ORDERING TECHNICAL SPECIFICATIONS

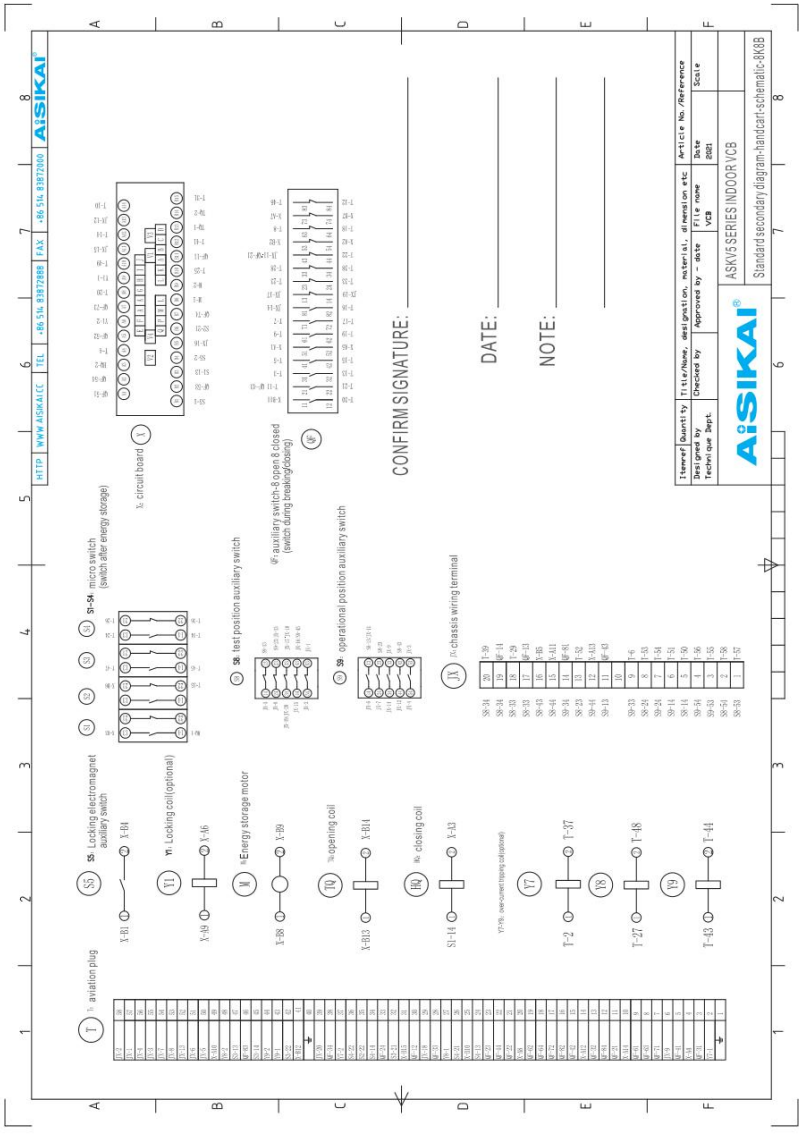
Customer name				Project name	
Date		Quantity		Delivery date	
Mechanical structure	VS1 (default) □ Special requirement		Rated voltage	12KV □	24KV □
Rated current	630A □	1250A □	1600A □	2000A □	2500A □ 3150A □ 4000A □
Breaking current	20KA □	25KA □	31.5KA □	40KA □	
Installation method	Handcart □	Fixed □	Side-mounted (left outlet line) □	Side-mounted (right outlet line) □	
Vacuum arc extinguishing chamber	Normal insulating cylinder □		Solid-sealed polar pole □	Factory requirement □	
Cabinet type	650(distance 150mm) □		800(distance 210mm) □	1000(distance 275mm) □	
Installation dimensions diagram	AISIKAI standard □		provided by customer □		
Electrical schematic diagram	AISIKAI standard □		provided by customer □		
Operational voltage	AC220V □	AC110V □	DC220V □	DC110V □	Non-standard voltage( ) V □
Auxiliary contacts	8 open 8 closed is default □		Optional: 10 open 10 closed □	Special customized □	
Closing anti-tripping/ locking	Without closing anti-tripping, without closing locking(default) □		Optional:closing anti-tripping □	closing locking □	
Over-current tripping device	Without over-current tripper(default) □		Optional: Y7 Y8 □	Tripping current □	
Under-voltage tripping device	Without under-voltage tripper(default) □		Optional: DC220V □	DC110V □	
Handcart grounding method	Bottom friction grounding (standard) □		Grounding on both sides of the rail □		
Program lock: (optional for handcart type)	Two locks and one key □	Three locks two keys □	Four locks two keys □	Special program lock □	
	Mounting position: chassis □		Switch left side sealing plate □		
Chassis locking: (optional for handcart type)	Optional: DC220V □		DC110V □		
Emergency interlocking device: (optional for fixed type)	Emergency breaking interlock □		Emergency breaking and closing interlock □	Extension length: standard is 45mm □	
	Special length: Middle □	Left extension □	Right extension □	Note: The left and right is judged from the front of the circuit breaker (face to panel)	
Spindle interlocking device (optional for fixed type)	Left extension □	Right extension □	Spindle extension length: standard is 45mm □	Special length:	
	Note: The left and right is judged from the front of the circuit breaker (face to panel)				
Use environment	Altitude: ≤1000m □	Temperature -25 ℃ ~+40 ℃ □	Special requirement:		
Packaging and transportation requirements:					
Other technical requirements:					
Note:The price of the circuit breaker already includes standard configuration (details in the above table). Other optional parts are charged additionally.					
User confirmation signature			Contact telephone number		

ELECTRICAL SCHEMATIC DIAGRAM

Handcart vacuum circuit breaker electrical schematic diagram- 8 open 8 closed

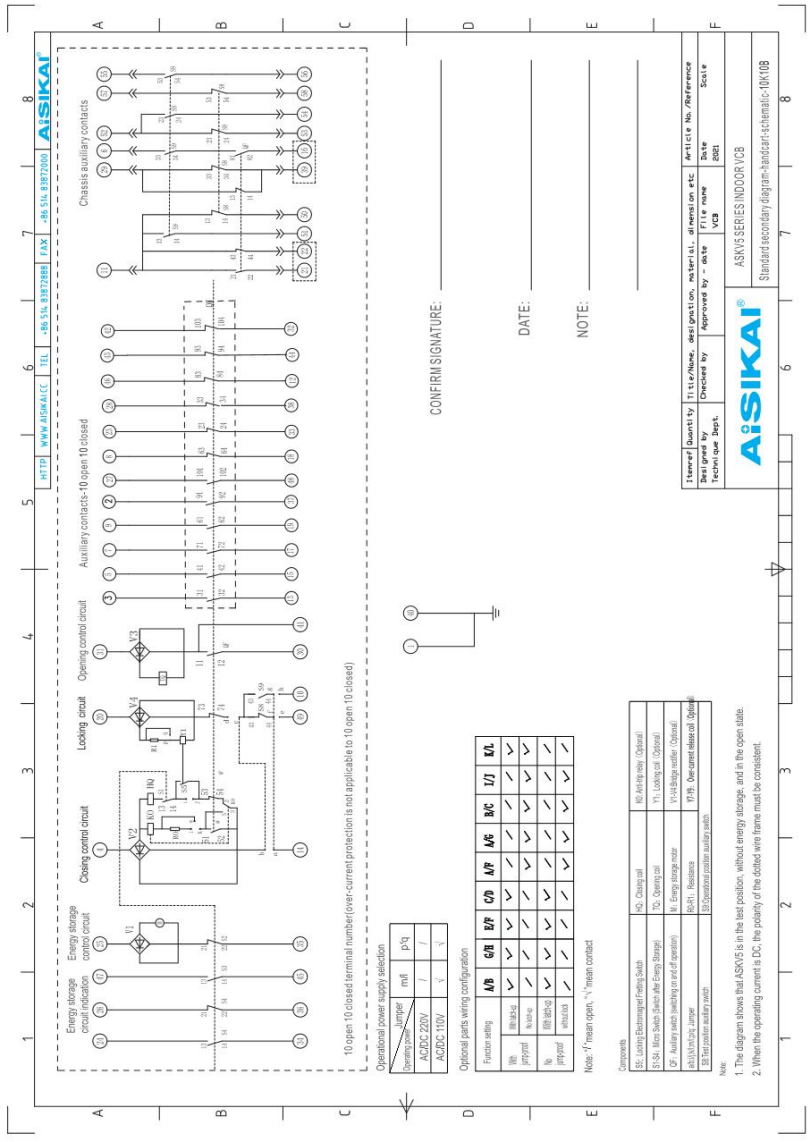


Handcart vacuum circuit breaker secondary wiring diagram- 8 open 8 closed

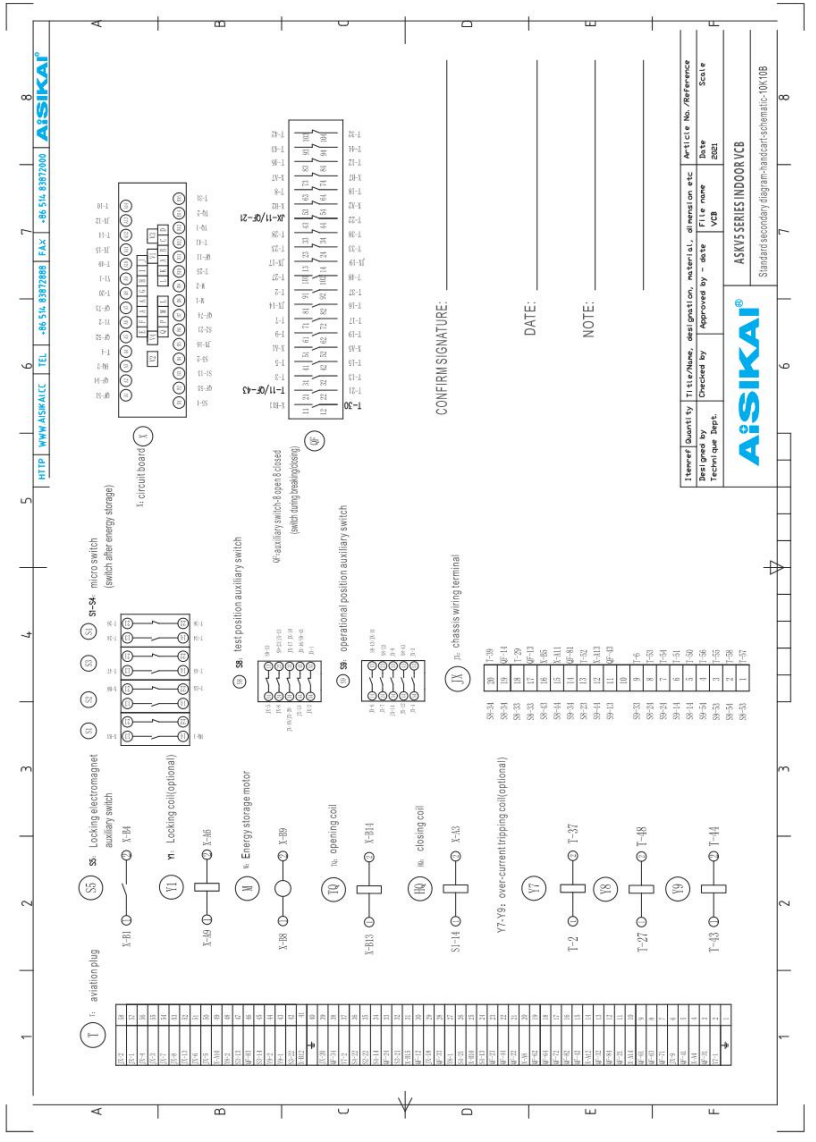


ELECTRICAL SCHEMATIC DIAGRAM

Handcart vacuum circuit breaker electrical schematic diagram- 10 open 10 closed

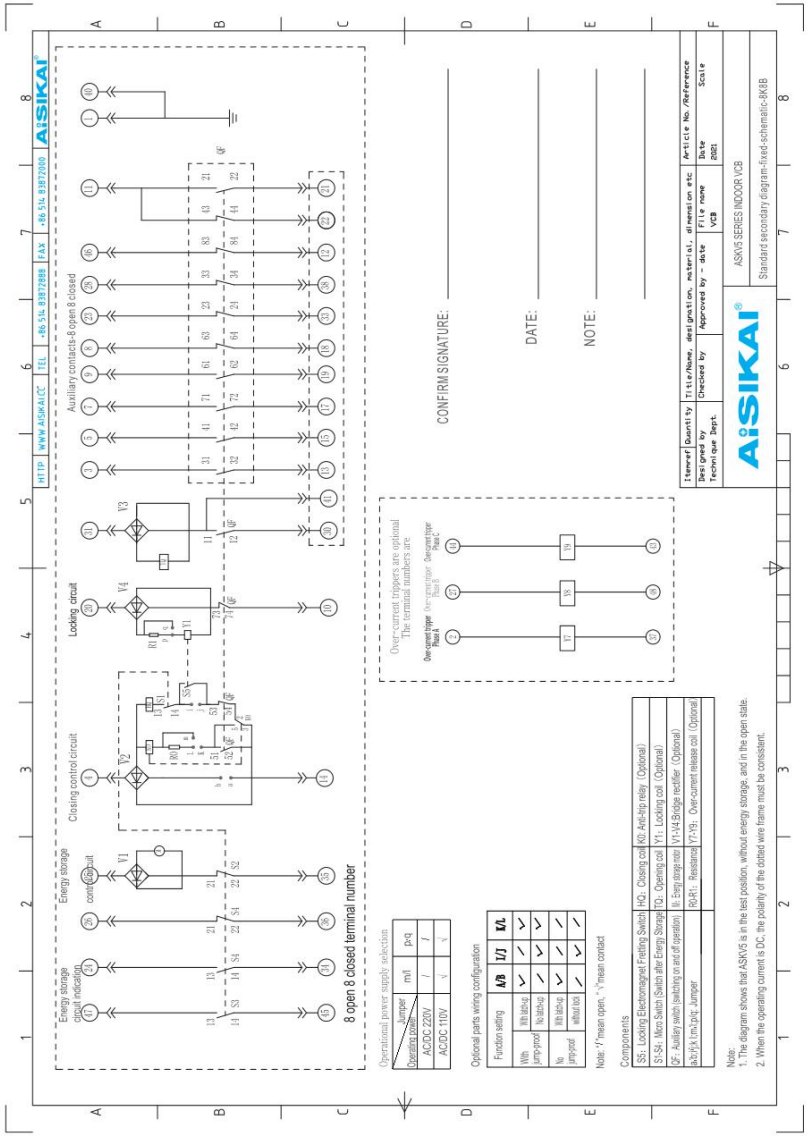


Handcart vacuum circuit breaker secondary wiring diagram- 10 open 10 closed

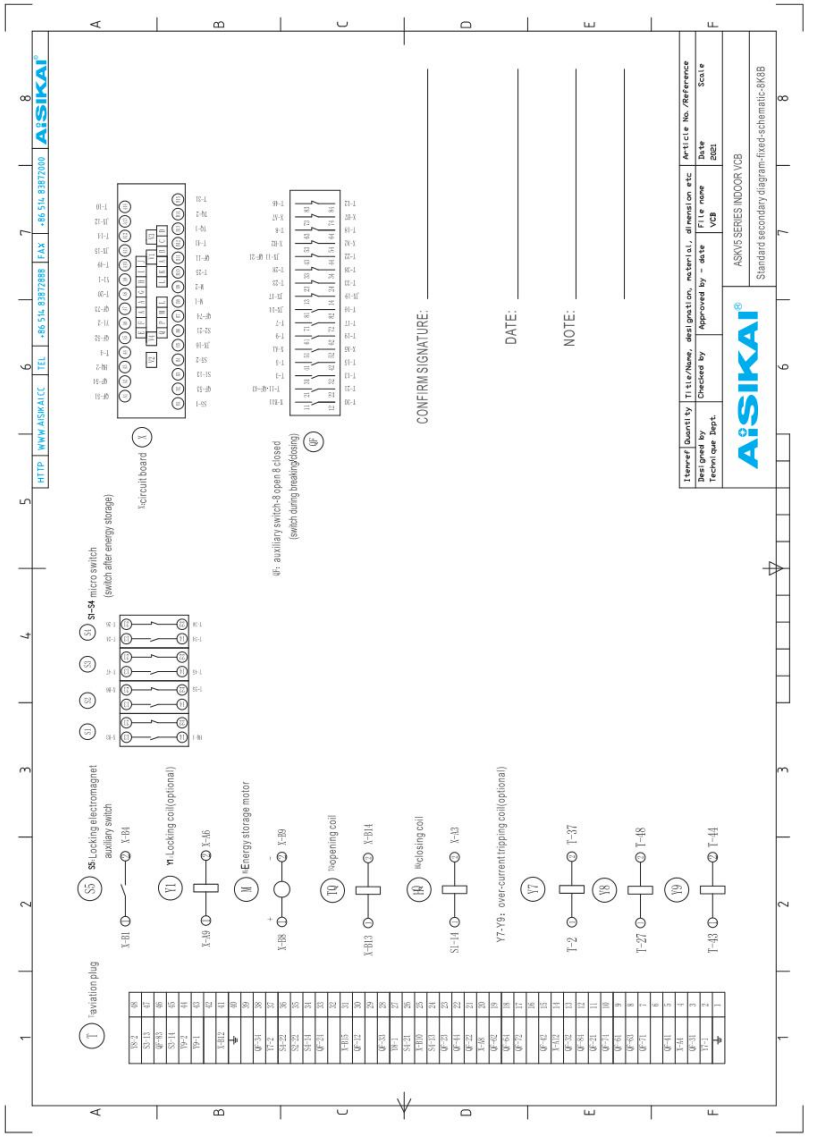


ELECTRICAL SCHEMATIC DIAGRAM

Fixed vacuum circuit breaker electrical schematic diagram- 8 open 8 closed

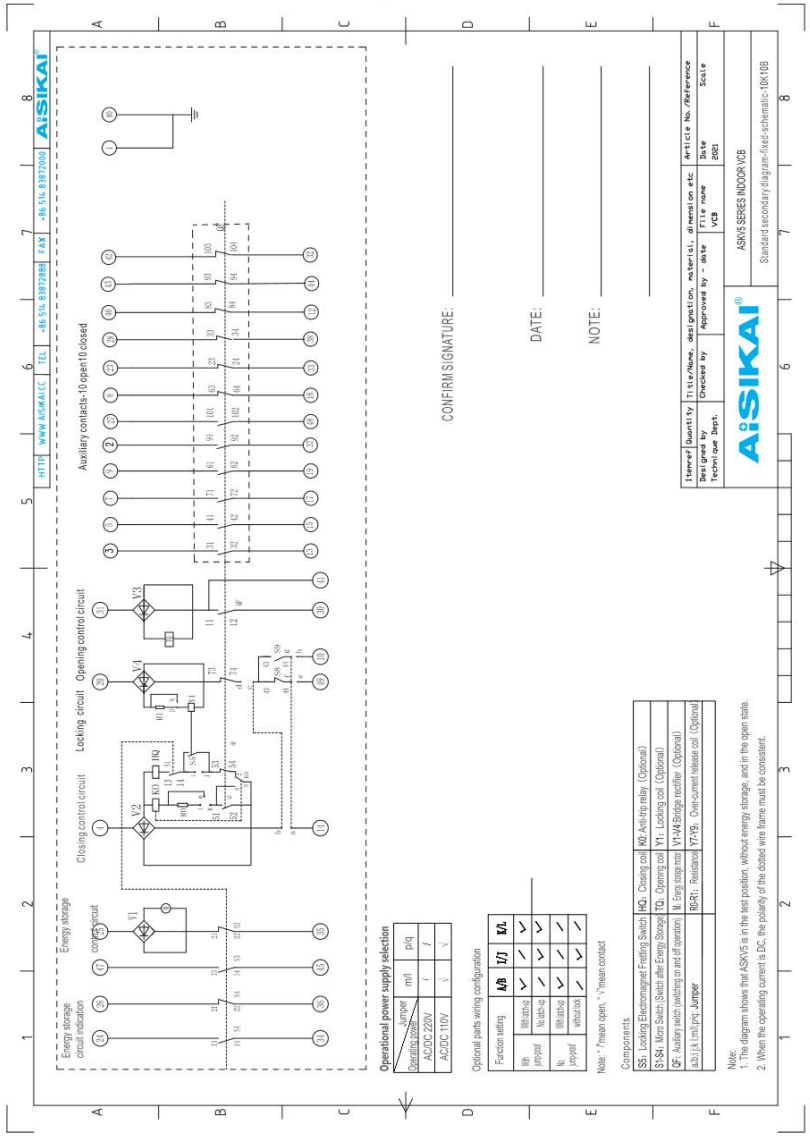


Fixed vacuum circuit breaker second wiring diagram- 8 open 8 closed

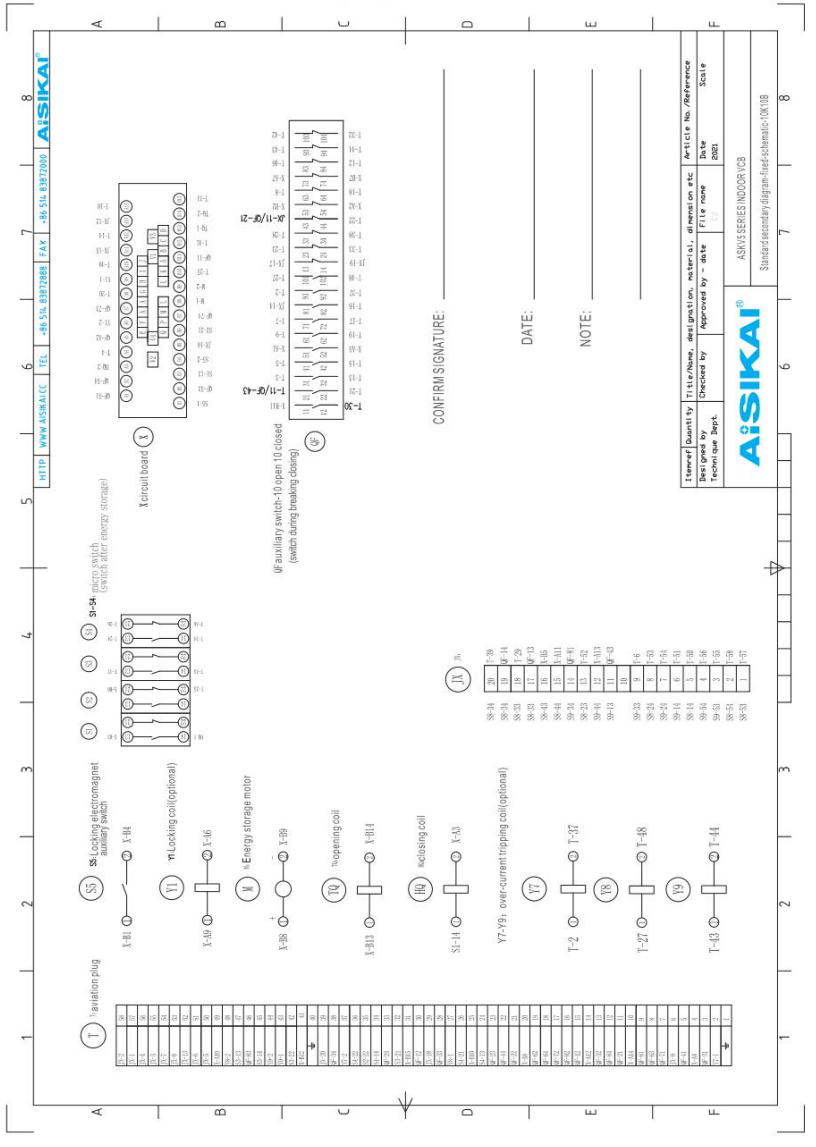


ELECTRICAL SCHEMATIC DIAGRAM

Fixed vacuum circuit breaker electrical schematic diagram- 10 open 10 closed



Fixed vacuum circuit breaker secondary wiring diagram- 10 open 10 closed



ASKV5-40.5 SERIES INDOOR HIGH VOLTAGE VACUUM CIRCUIT BREAKERS



Circuit Breaker Structure Adopts Integrated Design

Spring operating mechanism and the overall part of the circuit breaker adopt an integrated structural design. The primary main circuit and the mechanism adopt the form of upper and lower layout. The main circuit is located in the upper part of the circuit breaker; the spring operating mechanism and the handcart advance mechanism are located in the lower part of the circuit breaker. The structure is compact and the layout is reasonable.

Main Circuit Adopts Sleeve Coupling or Solid-sealed Structure

The main circuit of ASKV5-40.5 has 2 types of structures: sleeve coupling and solid-sealed, providing convenient selection for users according to different use places.

Sleeve coupling type: the vacuum arc extinguish chamber of the ASKV5 VCB's main circuit is positioned in the enclosed insulating cylinder. The insulating cylinder is made of epoxy resin with reliable mechanical and electrical performance. The cylinder is moulded adopting the advanced automatic pressure gelation (APG) process. The cylinder functions not only a support, and also as insulation between phase and phase, between phase and ground.

The design of the insulating cylinder fully takes into account the requirements of the national standard and the harsh working conditions. It can not only prevent the vacuum arc extinguish chamber from being affected by the external environment, but also prevent dust and foreign matter from entering the main circuit. It also ensures that even in humid, hot and heavily polluted environments, it presents a high resistance state to the voltage effect.

Solid-sealed structure: the primary main circuit of circuit breaker uses solid-sealed polar poles with solid insulation technology. The solid-sealed polar poles. The vacuum arc extinguisher and other parts of the primary conductive circuit are sealed directly in a special epoxy resin material using advanced automatic pressure gelation (APG) process to form a main electrical circuit module. Double skirt design is used at the mounting end of the solid-sealed polar pole. The polar pole has the characteristics of large creepage ratio distance, high mechanical strength, high precision of parts, small number of parts, without secondary adjustment and small lap surface. The electric field distribution of the poles is uniform, avoiding the damage to the organic insulation caused by the local electric field concentration. What's more, this structure design can simplify the assembly process of primary main circuit, completely avoid the problem of loosening the primary main circuit connection bolts due to vibration in operation, ensure the high reliability of the primary main circuit connection, and make it possible to realize the maintenance-free primary main circuit of the circuit breaker.

Reliable Integrated Spring Operating Mechanism

The spring operating mechanism of VCB is a planar layout, with manual energy storage and electric energy storage function. The operating mechanism is placed below the front of the arc extinguishing chamber. This structure design not only can make the whole machine size small, but also can make the operating mechanism performance and the required performance of the arc extinguishing chamber breaking and closing more compatible, reducing the unnecessary intermediate transmission process, reducing energy consumption and noise, so that the operation performance is more reliable.

Flexible Installation Method

The circuit breaker has two types of installation, fixed and handcart, both of which can realize reliable mechanical "five-proof interlock" very conveniently. It can be directly installed in all types of fixed switch cabinets, and can also be mounted on the handcart of all types of removable switch cabinets.

MAIN TECHNICAL PARAMETERS

Item		Unit	Technical parameters		
Rated voltage		kV	40.5		
Rated insulation level	Rated short-time power frequency withstand voltage (1min)	kV	95		
	Rated lightning impulse withstand voltage (peak)	kV	185		
Rated frequency		Hz	50/60		
Rated current		A	630 1250	630 1250	1250 1600 2000 2500 3150
Rated short-circuit breaking current		kA	20	25	31.5
Rated short-time withstand current		kA	20	25	31.5
Rated peak withstand current		kA	50	63	80
4s thermal stable current		kA	20	25	31.5
Rated dynamic stable current		kA	50	63	80
Rated short-circuit closing current (peak)		kA	50	63	80
Rated short-circuit duration		s	4		
Mechanical life		times	10000		
Rated Capacitor group closing inrush current		kA	12.5(frequency not more than 1000Hz)		
Rated single/back-to-back capacitor group breaking current		A	630/400		
Short-circuit breaking current breaking times		times	20		
Secondary circuit power frequency withstand voltage		V	2000		
Rated operating voltage		V	AC110/220 DC110/220		
Rated operation sequence		V	O-0.3s-CO-180s-CO		
Energy storage Time		S	≤15		
Contact opening distance		S	20±2		
Contacting travel		mm	6±1		
Interphase center distance		mm	300±1.5		
Contact closing Bounce Time		ms	≤ 3		
Three phase opening、closing Non-synchronous characteristic		ms	≤ 2		
Average opening speed1		m/s	1.4~2.0		
Average closing speed2		m/s	0.6~1.3		
Closing time (rated voltage)		ms	30~70		
Opening time (rated voltage)		ms	20~45		
Contact opening rebound amplitude		mm	≤3		
The allowable wear cumulative thickness of moving and static contacts		mm	3		
Main conductive circuit resistance		μΩ	Handcart type	Fxied type	Rated current
			≤75	≤50	1250A and below
			≤50	≤40	1250A and below

1.Average switching speed is the average speed of 12 mm after the breaker contacts have just been switched off;
2.Average closing speed refers to the speed of 12 mm before closing of circuit breaker contacts.

Energy Storage Motor Parameters

Type	Rated voltage(V)	Rated input power(W)	Normal working voltage range	Energy storage time at rated voltage(S)
ZYJ55-1	DC110V DC220V	100	85%~110%Rated voltage	≤15

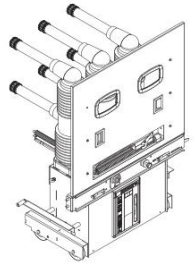
Technical Parameters of Closing and Opening Electromagnets and Related Electrical Components

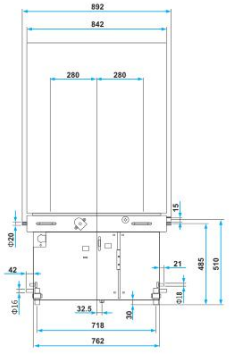
Item / Category	Closing electromagnet		Opening electromagnet		Locking electromagnet		Anti-tripping relay	
Rated working voltage (V)	DC220	DC110	DC220	DC110	DC220	DC110	DC220	DC110
Rated working current(A)	1.3	2.6	1.3	2.6	25mA		9.1mA	
Rated power(W)	288	288	288	288	2.7		1.0	
Normal working voltage range	85%~110% Rated voltage		65% ~120% of rated voltage.If lower than 30% of rated voltage, the switch cannot open.		–		–	

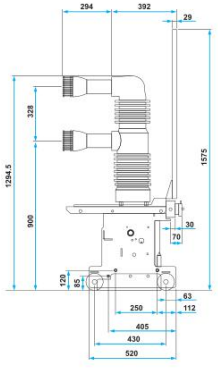
Secondary Control Circuit Solution Portfolio

Control voltage	Locking solution	Anti-tripping solution	Under-voltage tripping solution	Over-current tripping solution		
AC220V	With electrical locking	With anti-tripping relay	With under-voltage tripper	With over-current tripper	Number of over-current trippers	Action current value
DC220V					2 units/3 units	3.5/5/7.5/10
AC110V	Without electrical locking	without anti-tripping relay	Without under-voltage tripper	Without over-current tripper		
DC110V						

40.5kV Handcart Vacuum Circuit Breaker Outline Dimensions(630A~3150A)(1200 Cabinet type)





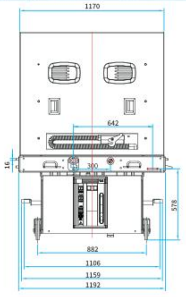


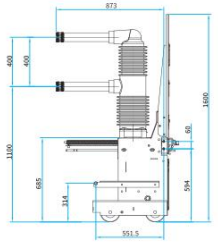
Rated current(A)	Rated short-circuit breaking current(KA)	Star-shaped contact	Static contact size(mm)
630	31.5	CT-24	Ø35
1250		CT-30	Ø49
1600		CT-36	Ø55
2000		CT-48	Ø79
2500~3150		CT-64	Ø109

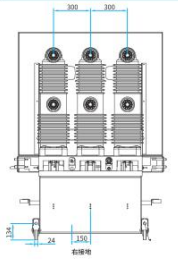
The main circuit adopts solid seal type

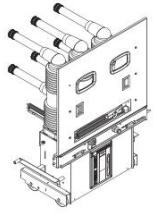
OUTLINE AND INSTALLATION DIMENSIONS

40.5kV Sleeve Coupling Vacuum Circuit Breaker Outline Dimensions(630A~3150A)（1400 Cabinet type）





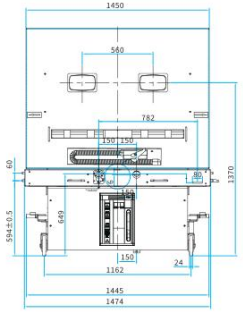


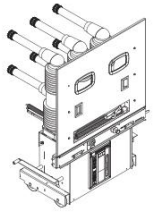


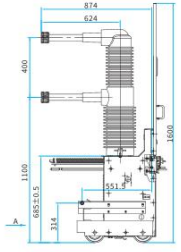
Matching cabinet width :1400mm, The main circuit is solidl ysealed

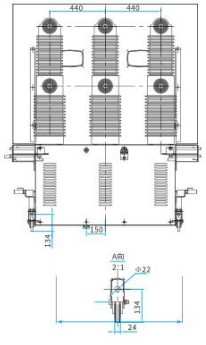
Rated current(A)	Rated short-circuit breaking current(KA)	Star-shaped contact	Static contact size(mm)
630	31.5	CT-24	Ø35
1250		CT-30	Ø49
1600		CT-36	Ø55
2000		CT-48	Ø79
2500~3150		CT-64	Ø109

40.5kV Solid-sealed Vacuum Circuit Breaker Outline Dimensions(630A~3150A)（1680 Cabinet type）





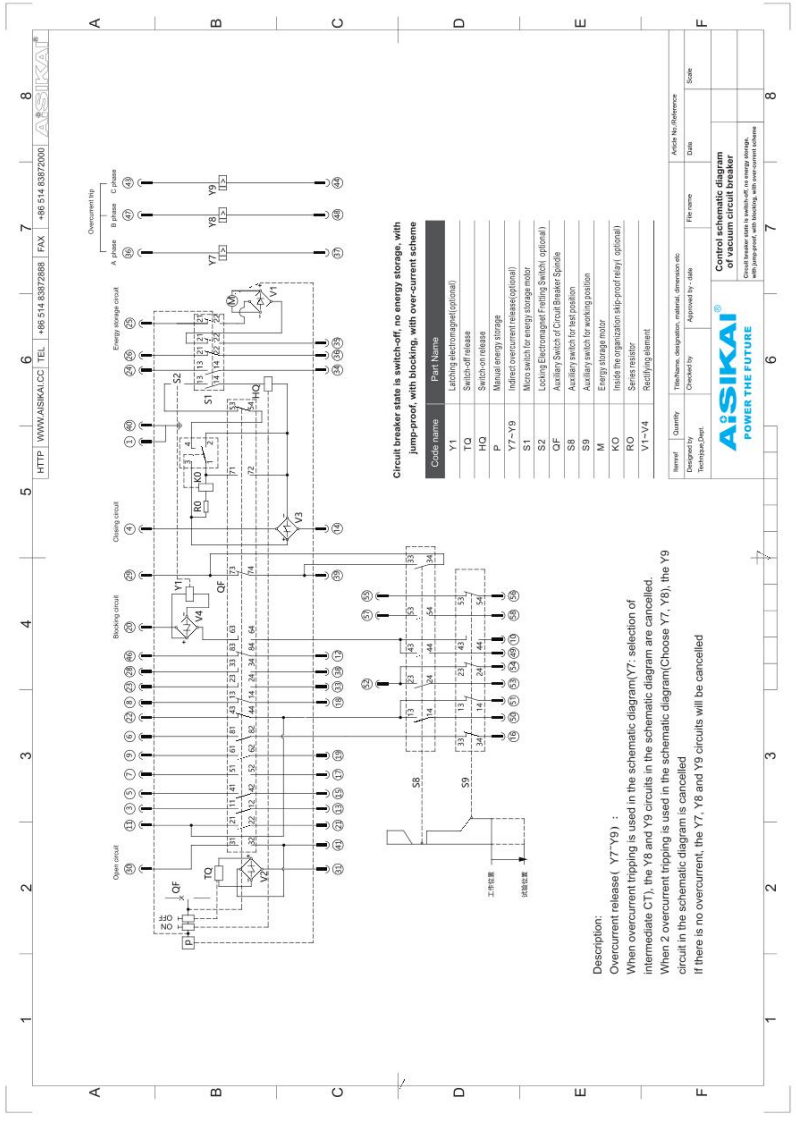




Rated current(A)	Rated short-circuit breaking current(KA)	Star-shaped contact	Static contact size(mm)
630	31.5	CT-24	Ø35
1250		CT-30	Ø49
1600		CT-36	Ø55
2000		CT-48	Ø79
2500~3150		CT-64	Ø109

The main circuit adopts solid seal type

ASKV5-40.5 high voltage vacuum circuit breaker electrical schematic diagram (2)



ASKV5-40.5 high voltage vacuum circuit breaker electrical schematic diagram (3)

