

TAKING CARE OF YOUR POWER

**HOLEC** **HH**

**VACUUM  
CIRCUIT BREAKERS**



- RELIABLE SWITCHING OPERATION THROUGH SAFE, LOW MAINTENANCE, COMPACT VACUUM CIRCUIT BREAKERS

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## INTRODUCTION

### **HOLEC - HOLLAND N.V.**

A safe and reliable distribution of electricity; that is what Holec Holland N.V. is aiming at, being one of the largest Dutch manufacturers of systems and components for electrical power engineering. Holec develops, manufactures and supplies complete systems and switching components for the distribution of electrical energy in the area of medium and low voltage. Furthermore, products and services of Holec can be applied in distribution stations for medium voltage, in residential and utility installations and in light and heavy industrial applications.

Resulting from their specializations, Holec Holland N.V. consists of the subsidiaries: Holec Middenspanning B.V., Holec Laagspanning B.V. and Holec Algemene Toelevering B.V.. They all work on their own national and international markets. Besides, Holec companies are active in Belgium, Germany, Great Britain, Denmark, Finland, Sweden and Australia. Other countries are being marketed by local representatives with support of Holec product specialists.

### **Holec Middenspanning B.V.**

Holec Middenspanning is specialized in switchgear installations and components for applications in distribution networks (main and substations, transformer stations) and industrial applications.

The switchgear systems are air or epoxyresin insulated and are mainly provided with circuit breakers on the basis of Holec vacuum interrupters. Holec Middenspanning thus offers an extensive range in switchgear systems and equipment, with which a safe and reliable distribution of electrical energy is guaranteed.

**Holec - Taking care of your power**





Holec vacuum circuit breaker - customised and multi-functional



Holec is your partner in electrical power engineering

## INTRODUCTION

### HOLEC VACUUM CIRCUIT BREAKERS

#### **Standard or customised**

Do you need standard vacuum circuit breakers or a particular customised type? Holec offers both. Designed and produced on the basis of over 30 years of experience. The application of well-proven techniques, such as patented metal-ceramic joints, make Holec vacuum circuit breakers and interrupters reliable, safe and, above all, easy-to-integrate components. For both new and existing panels. Plus... Holec ensures fast and flexible supply and high-quality technical support.

### CHARACTERISTICS

#### **Versatile**

- various standard versions
- customised versions for existing and new panels
- simple and compact switching mechanism

#### **Reliable**

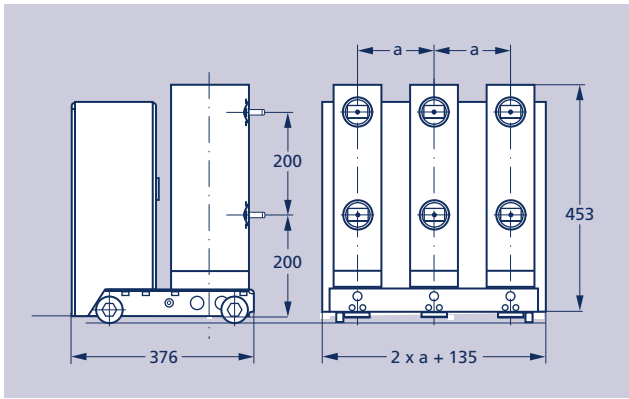
- long-life switchgear
- circuit breaker lifetime up to 30,000 switching operations
- maintenance-free

#### **Safe**

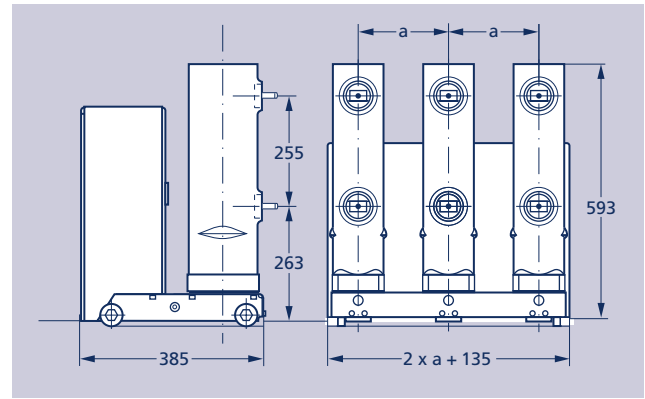
- no external breaking phenomena
- explosion-proof
- possibility for system interlocking

#### **Excellent interruption characteristics**

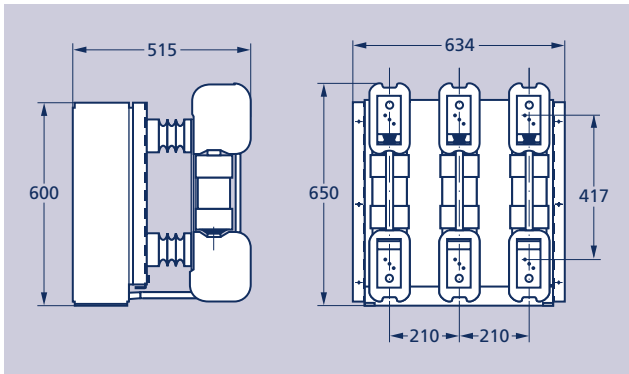
- no indicator for contact erosion necessary
- large number of interruptions under short-circuit conditions possible
- DC-component at least 33%



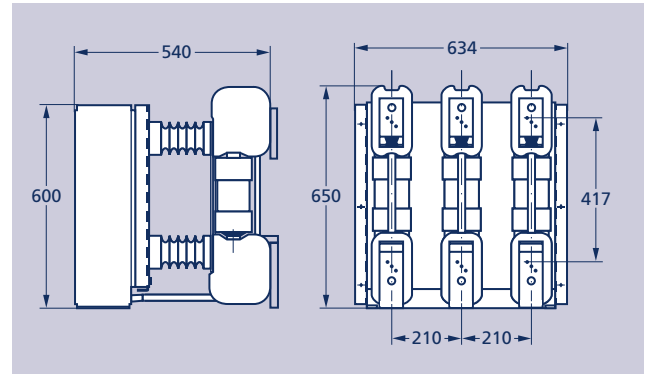
• FIG. 1



• FIG. 2



• FIG. 3



• FIG. 4

## THE PRODUCT

### TECHNICAL DATA

rated voltage (kV)	rated short circuit breaking current (kA)	rated <sup>1)</sup> normal current (A)	distance (a) between centres of phases (mm)			spring charging (s)	operating times		switching <sup>4)</sup> sequence	dimensions see figure	weight (kg)						
			150	210	275		closing time (ms)	opening time (ms)									
12	16	800	x	x		< 12	< 35	40-55	K	1	70						
		1250	x	x								K	2	75			
	20	800	x	x					K	1	70						
		1250	x	x								K	2	75			
	25	800	x	x					K	2	75						
		1250	x	x								K	2	75			
		1600	x	x								K	2	75			
	31.5	2500	x						< 3	60-95	35-60	N	3	156			
		3150	x												N	4	156
		4000 <sup>2)</sup>	x												N	4	156
	40	2500	x									L	3	156			
	17.5	16	800	x	x					< 12	< 35	40-55	K	1	70		
1250			x	x		K	2	75									
20		800	x	x		K	1	70									
		1250	x	x					K				2	75			
25		800	x	x		K	2	75									
		1250	x	x					K				2	75			
		1600	x	x					K				2	75			
31.5		2500	x			< 3	60-95	35-60	N				3	156			
40		2500	x												L	3	156
24		16 <sup>5)</sup>	800		x	x	< 12	< 35	40-55				K	5	75		
			1250		x	x										K	5
	25	800	x	x		K				5	75						
		1250	x	x								K	5	75			
		1600	x	x								K	5	75			
	31.5	2500	x			< 3				60-95	35-60	N	6	156			
	36	25	2500 <sup>3)</sup>		x					< 3	70-105	40-70	N	7	156		

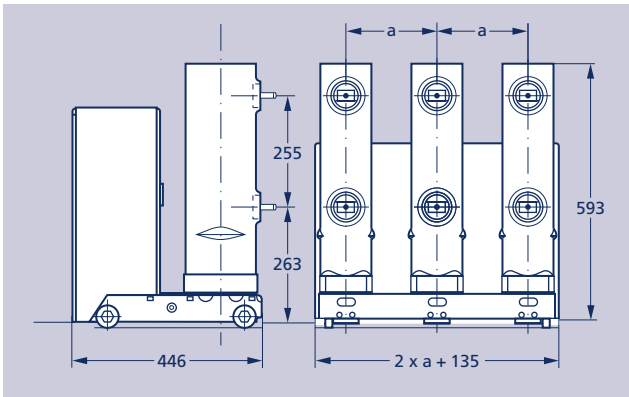
1) Rating in free air.

2) 4000A are realised by terminating busbars of defined dimensions.

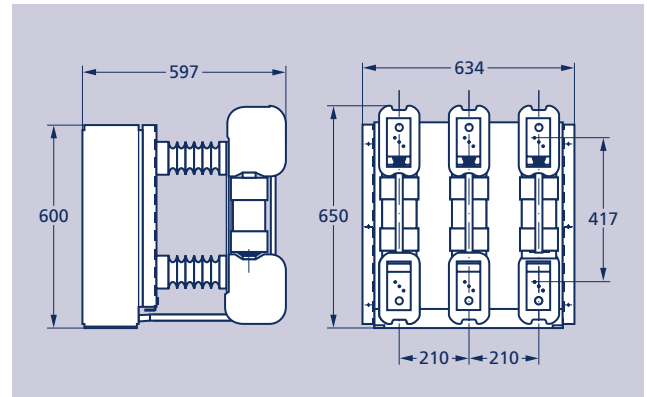
3) The 36 kV circuit breaker is suitable for distribution networks and has been designed for 5.000 operations at normal rated current.

4) N = O-0.3s-CO-180s-CO, K = O-0.3s-CO-15s-CO, L = O-180s-CO-180s-CO

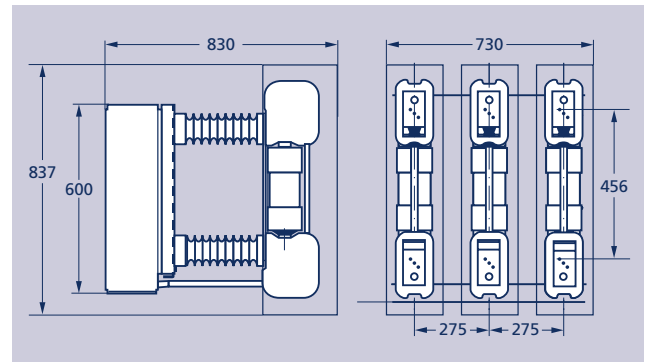
5) Deviating specifications. Please check.



• FIG. 5



• FIG. 6



• FIG. 7

## THE PRODUCT

### Mechanical data

number of operations/hr 40  
 number of interruptions  
 at rated normal current up to 30.000<sup>1)</sup>

auxiliaries:

spring charging motor

- AC voltages 100-240 VAC
- DC voltages 24-220 VDC
- power consumption 240 W  
(up to 25kA) 80 W

voltage release

- AC voltage 100-240 VAC
- DC voltage 24-220 VDC

closing release

- AC voltage 100-240 VAC
- DC voltage 24-220 VDC

zero voltage release

- AC voltage 100-240 VAC
- DC voltage 24-220 VDC
- opening time < 300 ms
- power consumption 17 W

1) 5000 operations for 36 kV circuit breaker

### Rules and regulations

The vacuum circuit breakers have been certified according to the specifications of:

- IEC publication 56: High-voltage alternating-current circuit breakers
- IEC publication 694/VDE 0670 Teil 1000: Common clauses for high-voltage switchgear and controlgear standards

Plus:

- KEMA certification (i.e. Joint Laboratories of the Dutch Electricity Supply Companies)
- manufactured in accordance with ISO 9001



Refurbishment for Main Oil Terminal, Rotterdam of 2 MV switchboards



Refurbishment for PLN Indonesia of 6.6 kV ocb of Westinghouse, Australia

## THE APPLICATION

### **Refurbishment**

Owing to the compact design, Holec circuit breakers can be easily integrated in existing panels to replace old circuit breakers, which often require frequent maintenance. Typical examples are shown on this page. Holec can do these refurbishment jobs or can assist customers or specialised firms to do refurbishment themselves.

### **Maintenance**

Holec vacuum interrupters are maintenance free during their operational life. Maintenance of the operating mechanism is required only after 10 years or 10,000 switching operations. After 30,000 switching operations a general inspection by the manufacturer is recommended.

### **Consultancy and service**

Consultancy? Service? Holec does not only supply high-quality electrical power installations and components. From acquisition to final commissioning of the installation, Holec will gladly offer any consultancy and service you may require. And of course first-rate after sales service!

This will ensure a reliable and safe installation.

### **Indeed... Taking care of your power**



Holec vcb with primary protection relay in 24 kV switchboard of Huser, Switzerland

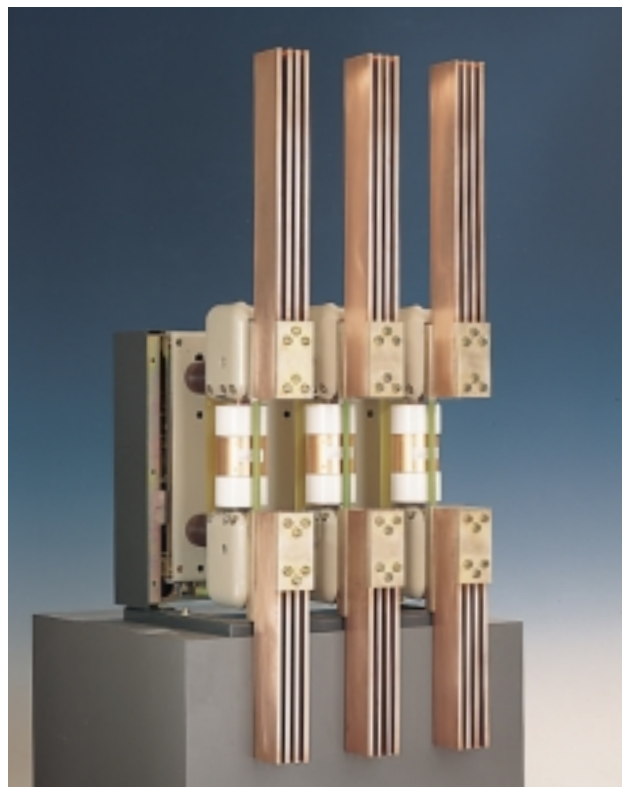


HOLEC vcb in 620 mm wide panel of Holec Unitole MV switchboard

## THE APPLICATION



36 kV vcb of compact dimensions



4000 A HOLEC vcb as supplied to electricity distribution company in The Netherlands

## **HOLEC HOLLAND N.V.**

- medium voltage switchgear systems and components
- low voltage switchgear systems and components
- general supplies

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Due to its policy of continuous research and development, Holec reserves the right to change the designs and specifications of its products without notice.