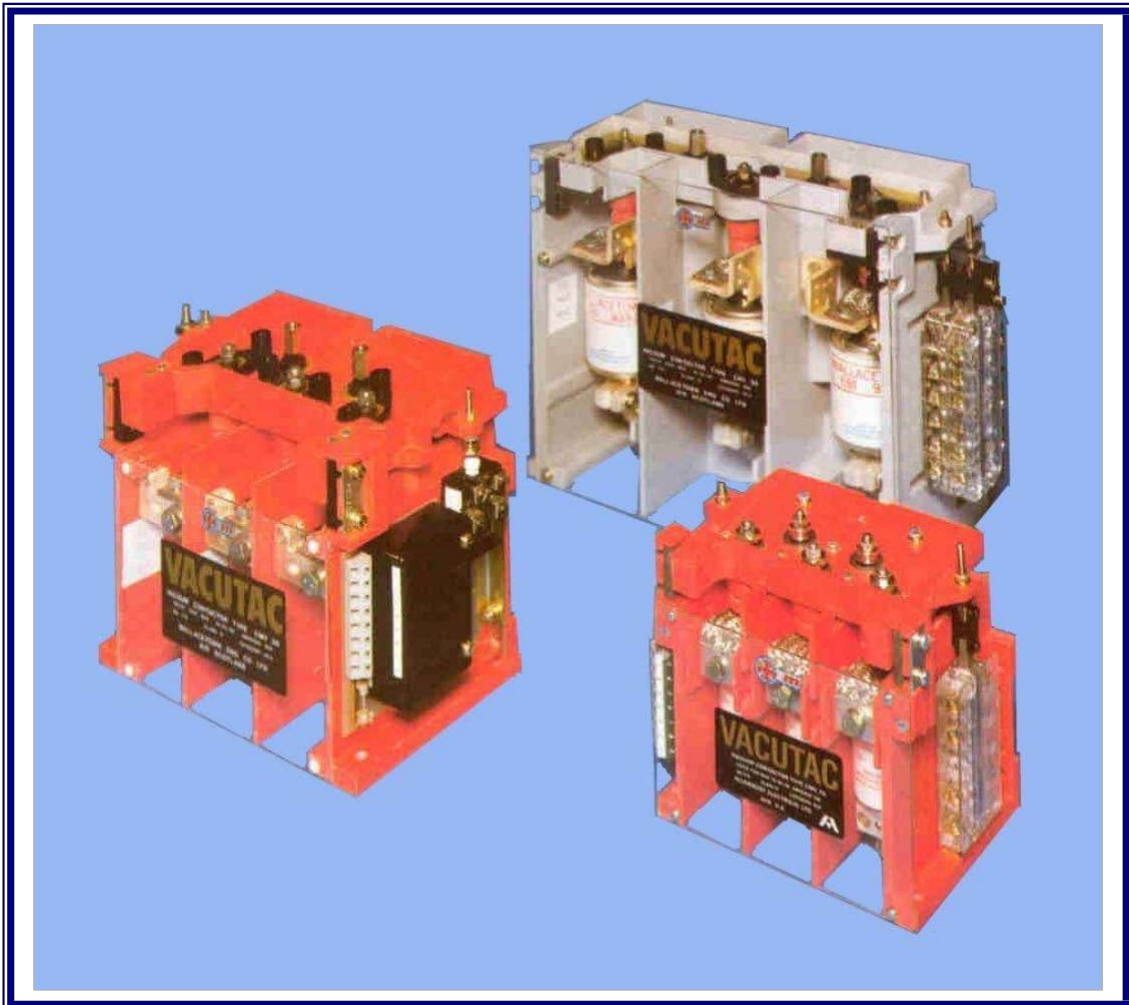




VACUUM CONTACTORS



TYPE CMV 15
TYPE CMV 30
TYPE CMV 40
TYPE CHV 30
TYPE CHV 40/50

150 AMP – 1100 VOLTS
300 AMP – 1100 VOLTS
400 AMP – 1100 VOLTS
300 AMP – 3600 VOLTS
400/500 AMPS – 3600 VOLTS

VACUUM CONTACTORS

TYPES CMV 15, CMV 30 & CMV 40 FOR VOLTAGES UP TO 1.2 KV TYPES CHV 30 AND CHV40/50 FOR VOLTAGES UP TO 3.6 KV

INTRODUCTION

These heavy duty contactors have been developed for use in the most arduous conditions, primarily for direct on-line switching of squirrel cage induction motors. They are, of course, suitable for other applications including transformer and capacitor switching.

Experience of their application has been gained over many years in such industries as underground coal mining and steel mills throughout the world, industries where continuous heavy duty with lack of down time and low maintenance are essential features.

PRINCIPLE OF OPERATION

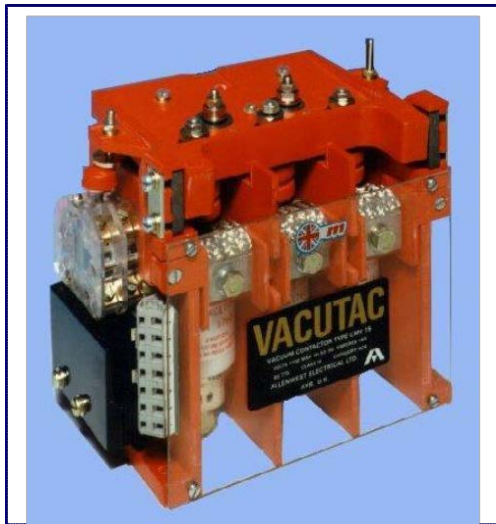
Interruption of the current takes place between two contacts housed in an evacuated ceramic envelope. The moving contact is attached to a metal bellows providing movement and retaining the vacuum. It is one of the fundamental principles of vacuum interruption that the contact gap dielectric strength recovers extremely quickly after arc interruption. This property ensures that the current in the arc ceases to flow at the first current zero. This reduces the arc energy considerably in comparison with conventional air break devices.

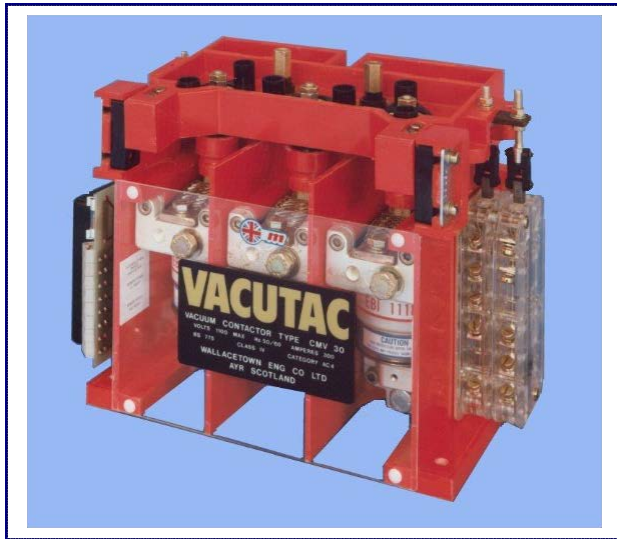
It is the lack of arc emission together with the resulting space saving that gives the vacuum contactor the following basic advantages over the air break design.

- No bi-products of arcing.
- No ionised gases after interruption
- High breaking capacity
- Short arcing time
- Low contact wear
- Virtually weld free
- Minimum maintenance
- Compact and light weight

CONSTRUCTION

The inherent 'low chop' vacuum interrupters are mounted in a rigid box frame assembly making use of D.M.C. molded component parts to provide a strong, durable and lightweight construction. Moving parts are made of nylon giving long life with low friction and wear. The contactor is held open by powerful compression springs to overcome the natural effect of atmospheric pressure tending to close the interrupters. Additional contact pressure is provided when the interrupters are in the closed position by individual springs mounted on each interrupter. All contactors are fitted with a fully encapsulated DC. coil which operates from a 50/60 hertz 110 volt supply, the rectification and economy circuit switching being an integral part of the contactor. Three alternative coil economy circuits are available, one employing tap changing of the coil a.c. supply, another employing economy resistors. The third with full wave rectification to close contactor and half wave rectification to run.





Type CMV 30

Triple pole versions of the contactors may be mounted on any plane without any alteration in their operating characteristics. Other configurations, such as double pole, should be applied in accordance with instructions given for their special application.

The contactors can be fitted with up to ten auxiliary contacts in any combination of normally open or normally closed. The contact blocks are positively driven on and off and are mounted on the side of the contactor where they are easily accessible for connection and inspection.

TESTS

The contactors comply with the appropriate parts of the following specifications:

- | | |
|----------------------|-----------------------|
| B.S. 775 Parts 1 & 2 | (Contactors) |
| IEC. 158-1 | (Contactors) |
| IEC. 265A | (Capacitor switching) |
| IEC. 292-1 | (Reversing duty) |
| IEC. 60 | (Impulse withstand) |



Type CHV 30

FAULT RATING

The contactors may be used on high prospective fault systems up to 150 MVA at rated voltage provided high rupturing capacity fuses are fitted. Finer coordination information can be provided to suit specific installations.

OPTIONAL FEATURES

Mechanical interlocks can be provided for reversing duty with the contactors mounted in a 'back to back' configuration.

Electrically tripped latching mechanisms are available.

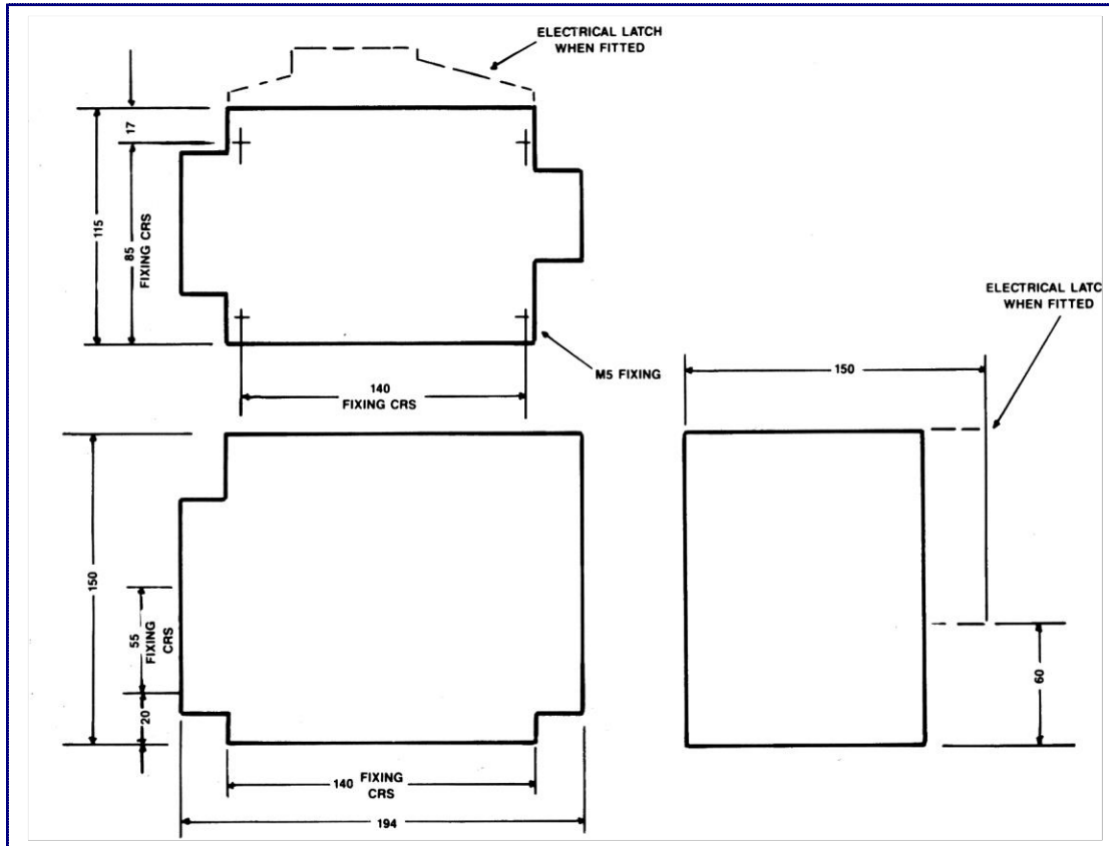
A loss of vacuum detector circuit can be provided to prevent the contactor operating in the unlikely event of an interrupter malfunctioning.

TECHNICAL DATA ON TRIPLE POLE VACUUM CONTACTORS

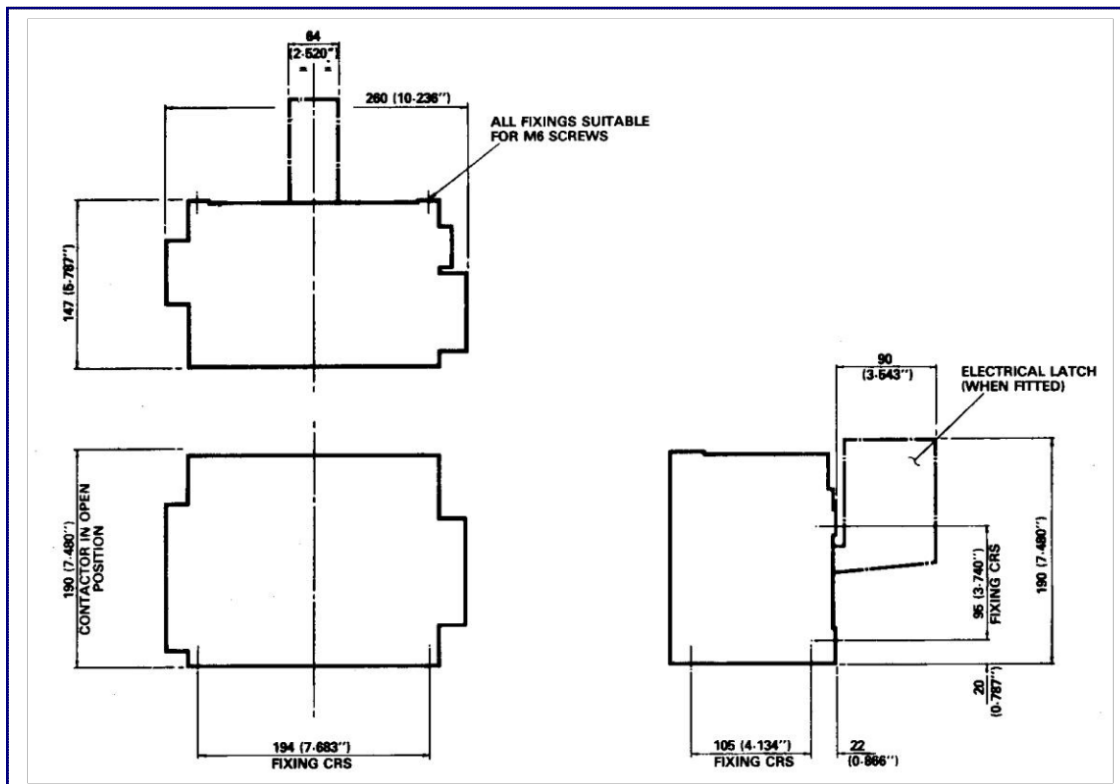
Contactor Reference	CMV 15	CMV 30	CMV 40	CHV 30	CHV 40/50	
Operating Voltage	1.2kV	1.2 kV	1.2 kV	3.6 kV	3.6 kV	
Rating	150A	300A	400A	300A	400A (500A Thermal)	
Maximum switching frequency (AC4 utilisation category)	1200 per hour					
Maximum motor duty	225 kW	450 kW	600 kW	1350 kW	1350 kW	
Maximum transformer duty (10 kA maximum inrush)	250kVA	500 kVA	660 kVA	1500 kVA	1500 kVA	
Maximum capacitor duty (10 kA maximum inrush)	250 kVAR	400 kVAR	530 kVAR	1300 kVAR	1300 kVAR	
Short time thermal rating – 1 second	4 kA	6 kA				
Power frequency test voltage – 1 minute	3.5 kV	3.5 kV	3.5 kV	10 kV	18 kV	
Impulse withstand level – IEC 60	14 kV	14 kV	14 kV	40 kV	40 kV	
Maximum interrupting capacity:- MVA rating Symmetrical Current - RMS	12 MVA 6 kA	12 MVA 6 kA	12 MVA 6 kA	37 MVA 6 kA	37 MVA 6 kA	
Closing time from coil energisation	90-100 ms			100-120 ms		
Time to fully open from coil de-energisation	18-22 ms					
Closing coil – integral rectifier fed from 110V a.c. source	Closing Hold in	250W 12W	340W 55W	340W 55W	220W 85W	220W 85W
Maximum H.R.C fuses (39 kA maximum peak)	-	-	-	450A	450A	
Weight of contactor	4 kg	10 kg	10 kg	12.5 kg	12.5 kg	
Mechanical life	5 x 10 ⁶					
Electrical life	1 x 10 ⁶					
Auxiliary contact rating:- Thermal rating Switching - 550V a.c. - 240V d.c. – resistive - 110V d.c. - inductive				10A 6A 1A 0.3A		

OUTLINE DIMENSIONS

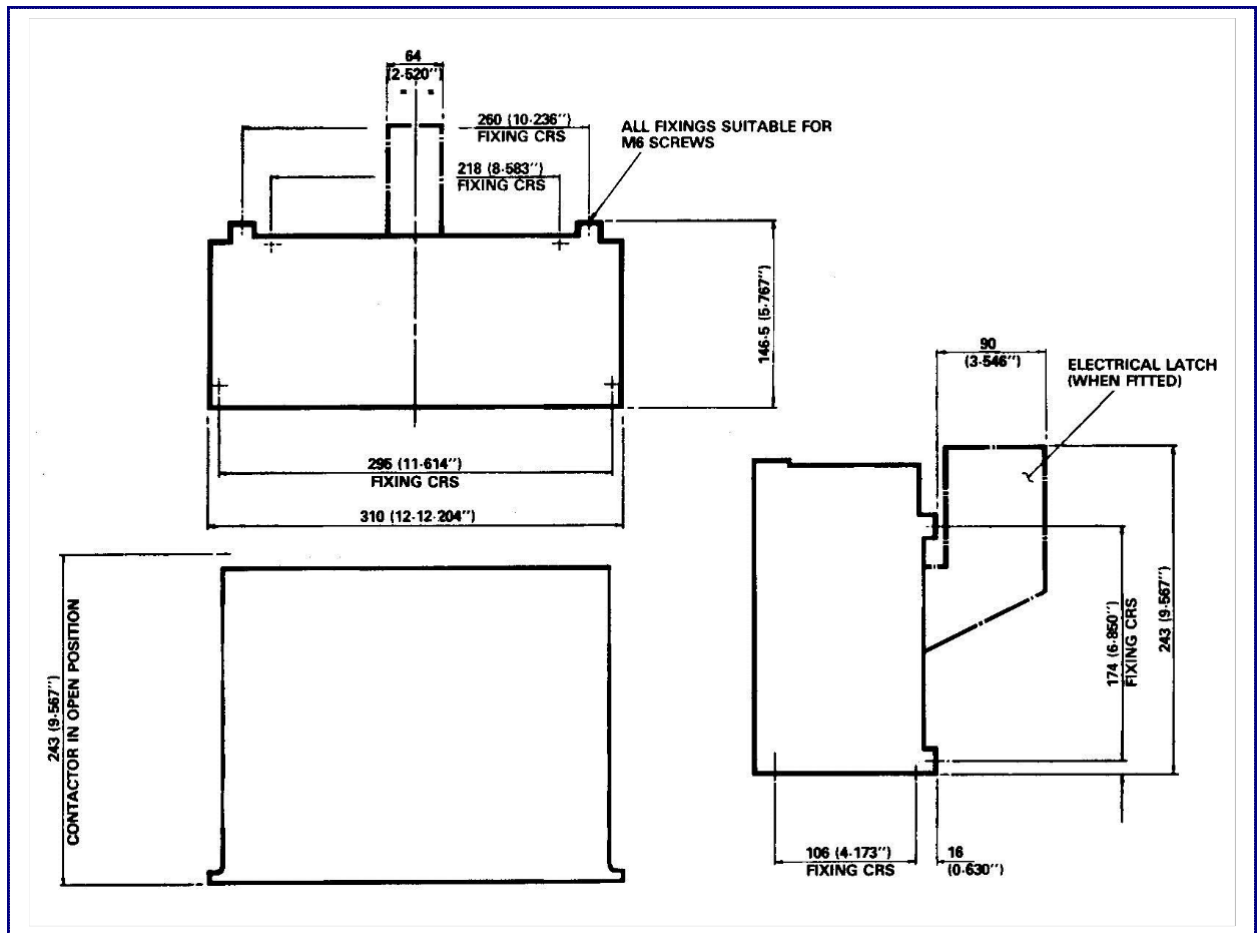
CMV 15



CMV 30, CMV 40



CHV 30, CHV40/50



Trades Description Act

Due to our continuous development program and the ever-changing requirements of International standards, it may prove necessary to alter the design or description of the equipment detailed in this publication without prior notice.

Details are typical and product specification may be varied to suit customers' requirements.