



ALKHALEFAH
ELECTRIC

VOLT







Alkhalefah Industries is a leading manufacturer and supplier of high-quality industrial products, serving a wide range of industries, including construction, infrastructure, and manufacturing. Established in 1994, our factory has built a solid reputation for delivering innovative solutions that meet the rigorous demands of today's industrial landscape. Alkhalefah Industries is a prominent Saudi factory aiming to emerge as a global leader in the production and supply of firefighting equipment and high-quality electrical products and services.

We Alkhalefah Industries are proud to contribute in Saudi Arabia's industry through establishments, specialization, partnerships, and eager to excellence.

Alkhalefah Electric is a prominent Saudi factory established in 1994, specializing in electrical solutions. It is a trusted partner of the Saudi Electricity Company (SEC) and collaborates with renowned global electrical companies such as Schneider, ABB, and LS. With over two decades of experience, Alkhalefah Electric has built a strong reputation for delivering high-quality electrical products and services. We offer a comprehensive range of solutions, including distribution panels, switchgear, s transformers, control systems, and automation solutions.

Alkhalefah Firefighting, established in 1994, Riyadh, Saudi Arabia , aims to emerge as a global leader in the production and supply of firefighting equipment. Our specialization lies in providing comprehensive solutions for various high-quality firefighting equipment. Our team comprises highly skilled and committed professionals from diverse backgrounds worldwide. The products manufactured in our facility undergo rigorous certification processes by UL, FM, BSI, LPCB, and Global Mark, ensuring strict compliance with International standards.





INTRODUCTION

Electricity is central to our modern way of life, powering our homes, workplaces, and industries every day. As indispensable as it is, electricity also demands diligent handling and robust safety measures, especially when it is meant to be operated by ordinary people. At **Alkhalefah**, we are fully committed to your safety and the well-being of those around you, which is why we've engineered our **Volt** Load Centers with high-quality components and advanced protective features. These measures not only safeguard your electrical system but also grant you peace of mind in any environment.



INTRODUCTION

Electricity is central to our modern way of life, powering our homes, workplaces, and industries every day. As indispensable as it is, electricity also demands diligent handling and robust safety measures, especially when it is meant to be operated by ordinary people. At Alkhalefah, we are fully committed to your safety and the well-being of those around you, which is why we've engineered our load centers with high-quality components and advanced protective features. These measures not only safeguard your electrical system but also grant you peace of mind in any environment.

A load center, often referred to as a Distribution Board (DB) is a crucial part of any electrical supply infrastructure. It acts as either the main or sub-distribution point for residential, commercial, and industrial premises. By segmenting incoming electrical power into multiple subsidiary circuits, load centers ensure precise distribution and reliable protection through dedicated circuit breakers or other protective devices.

Housed in a single, compact enclosure, these breakers provide essential fault isolation and overload protection, enhancing both operational stability and safety. Our load centers are designed in alignment with national and international standard SASO IEC 61439 to ensure superior performance and compliance with global safety requirements.

Our broad selection of distribution boards offers customers the flexibility to tailor an efficient, cost-effective setup that aligns with their unique needs and preferences.

SAFE AND RELIABLE

A robust lineup of distribution boards delivers extensive versatility, supporting a broad array of incoming supply options such as Switch Disconnectors, MCCBs, MCBs, RCCBs, or RCDs.

SLEEK APPEARANCE

Thanks to its sophisticated styling and streamlined design, the Alkhalefah load center marks a departure from the bulky, unattractive enclosures of the past. It blends seamlessly with any interior decor, making it an appealing addition rather than an eyesore.

ENHANCED SAFETY

Protecting against electric shock is paramount. During both the design and manufacturing phases, each panel is rigorously engineered to ensure thorough earthing, keeping operators safe whenever they come into contact with the enclosure.





ENCLOSED BUSBAR SYSTEM

The enclosed busbar assembly is specifically designed to prevent any inadvertent contact with energized busbars. By creating a protective barrier that blocks foreign objects from reaching these components, it plays a critical role in minimizing the risk of internal arcs and avoiding potential short circuits.

FRONT SHIELDING

A specially designed front cover (shroud) is fitted to the panel to prevent any accidental contact with energized components during normal operation. This precaution helps maintain user safety at all times.



OVERALL PERFORMANCE

Thermal Endurance

We confirm the load center's ability to regulate heat through temperature rise evaluations, conducted in accordance with IEC 61439-3. These tests verify that the unit can function continuously under stable thermal conditions.

Selectivity

By ensuring only the affected branch circuit trips when a fault occurs, selectivity avoids unnecessary outages and prevents a total shutdown. This capability is made possible by our advanced main breaker design.

Short-Circuit Capability

Our load center, including its busbar arrangement, is certified for a 10kA short-circuit rating. Additionally, the busbar system can withstand up to 25kA for 250 milliseconds under short-time stress conditions.

Mechanical Robustness

In line with the requirements of IEC 61439-3, the load center undergoes rigorous impact testing to confirm that it can endure mechanical forces expected in typical installation environments.

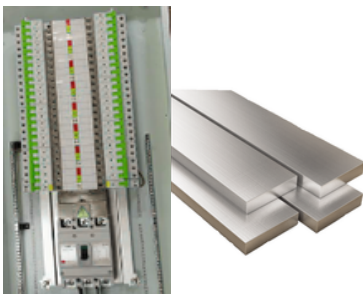
Altitude Compatibility

Our distribution boards are designed to operate at elevations up to 2000 meters with no reduction in performance, ensuring consistent functionality wherever they may be installed.

RELIABILITY

Exceptional Corrosion Resistance

The enclosures and interior components offer dual-layer defense against corrosion. First, the base material is electro-galvanized steel, followed by a polyester powder coating. This finish has been validated by **1000 hours** of salt spray testing, guaranteeing reliable operation even in highly corrosive conditions.



Tin-Plated Copper Busbars

Constructed from 99.9% pure copper, the busbars in our load centers are tin-coated to shield them from atmospheric corrosion and maintain optimal conductivity.

Ingress Protection

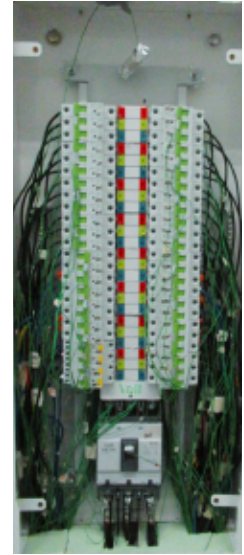
Our load centers are certified to IP40, offering substantial protection against solid particles in indoor environments.



INSTALLATION

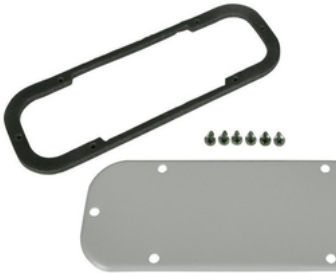
Spacious Cable Management

A compact busbar arrangement, combined with a wide-body enclosure, ensures ample room for wiring, even with larger modules like RCBOs.



Pre-Punched Openings (Knockouts)

These perforations accommodate a range of conduits and gland sizes following international guidelines. They can be opened without hassle and are designed with smooth edges to protect cables and prevent user injury.



Detachable Gland Plates

Gland plates at the top and bottom can be removed, making it easier to route conduits and cables in tight spaces.

Adjustable Mounting Depth

The mounting assembly features adjustable depth settings to ensure circuit breakers align neatly with the enclosure door, eliminating any gaps once installed.



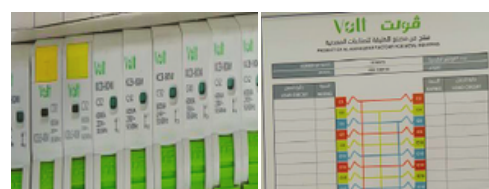
Generous Earth and Neutral Terminals

Both earth and neutral conductors are mounted on bars fashioned from tin-plated brass, which helps prevent arcing and guarantees secure connections. The total number of terminals matches the number of outgoing circuits.



Distinct Phase Identification

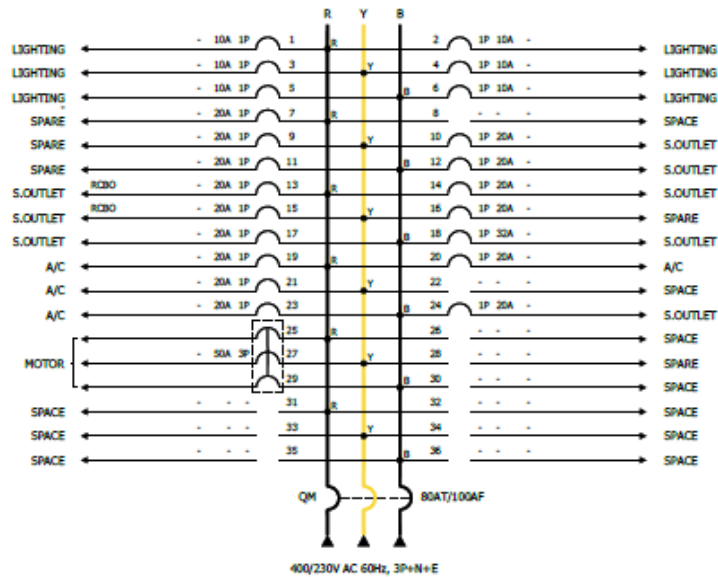
Clear phase markers on the enclosure cover and the wiring guide assist electricians in effectively balancing loads.





WIRING GUIDE

A labeled reference chart outlines the connections, allowing quick circuit identification and safe isolation during maintenance.



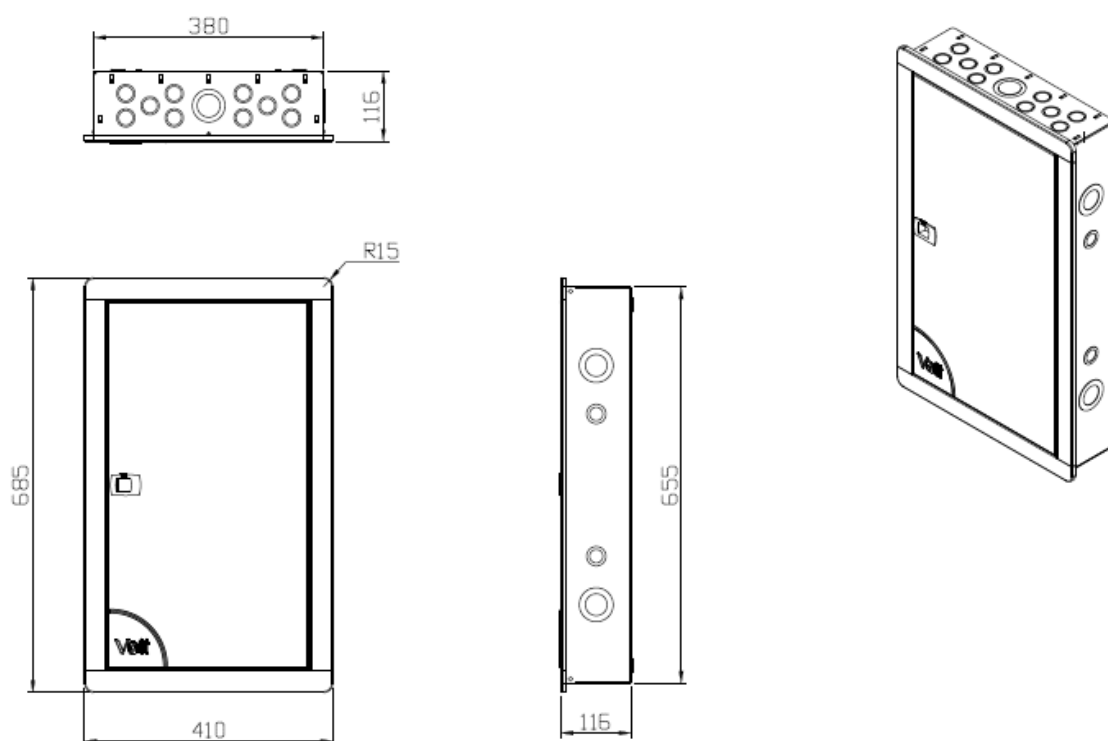
TYPE TESTING

All devices integrated into our load centers adhere to eco- friendly principles and comply with RoHS regulations. We place great emphasis on user protection throughout every stage of design and manufacturing, both for the load centers themselves and for the breakers. Alkhalefah load centers are tested in accordance with the latest IEC 61439-3 DBO (Distribution Boards for operation by ordinary persons) standard, ensuring superior safety levels for day-to-day use.

TECHNICAL SPECIFICATIONS

Standard	SASO IEC 61439-3
Busbar Rating	200/250A
Busbar Type	Fully shrouded dual solid tin-plated copper
Voltage rating	220-440VAC 50/60Hz
Fault level	25KA
No. Of ways	12, 18, 24, 30, 36, 42, 48 TPN
Degree of protection	IP40
Enclosure material	Galvanized steel sheet
Steel thickness	Box-xxx, Pan assembly-xxx, DFC-xxx
Knock outs	Top and Bottom
Gland plates	Removable on top and bottom
Enclosure finish	RAL 9003, polyester epoxy powder paint. Other colours on request.
Coating thickness	70-100 microns
Incoming options	MCCB & MCB. Isolator, RCCB and RCD on request.
Terminals capacity	MCB frame size 63A: 25mm ²
	MCB frame size 125A: 50mm ²
	MCCB frame size 250A: 120mm ²
Neutral terminal bars	10mm ² terminals for outgoing cables and 2x50mm ² for incoming cables
Earth terminal bars	10mm ² terminals for outgoing cables and 2x50mm ² for incoming cables

DIMENSIONS





LOADCENTER PRODUCT RANGE WITH MCCB

MCCB 40A Main TPN Flush mount IP40 RAL 9003 Powder coat

Distribution	CAT Code	Order Code	Dimension
12way	VLLC10330401C01	VLLC154	-
18way	VLLC10330501C01	VLLC155	600x380x115
24way	VLLC10330601C01	VLLC156	654x380x115
30way	VLLC10330701C01	VLLC157	710x380x115
36way	VLLC10330801C01	VLLC158	763x380x115

MCCB 50A Main TPN Flush mount IP40 RAL 9003 Powder coat

Distribution	CAT Code	Order Code	Dimension
12way	VLLC10430401C01	VLLC159	-
18way	VLLC10430501C01	VLLC160	600x380x115
24way	VLLC10430601C01	VLLC161	654x380x115
30way	VLLC10430701C01	VLLC162	710x380x115
36way	VLLC10430801C01	VLLC163	763x380x115

MCCB 63A Main TPN Flush mount IP40 RAL 9003 Powder coat

Distribution	CAT Code	Order Code	Dimension
12way	VLLC10530401C01	VLLC164	-
18way	VLLC10530501C01	VLLC165	600x380x115
24way	VLLC10530601C01	VLLC166	654x380x115
30way	VLLC10530701C01	VLLC167	710x380x115
36way	VLLC10530801C01	VLLC168	763x380x115
42way	VLLC10530901C01	VLLC169	820x380x115
48way	VLLC10531001C01	VLLC170	873x380x115


MCCB 80A Main TPN Flush mount IP40 RAL 9003 Powder coat

Distribution	CAT Code	Order Code	Dimension
12way	VLLC10630401C01	VLLC171	-
18way	VLLC10630501C01	VLLC172	600x380x115
24way	VLLC10630601C01	VLLC173	654x380x115
30way	VLLC10630701C01	VLLC174	710x380x115
36way	VLLC10630801C01	VLLC175	763x380x115
42way	VLLC10630901C01	VLLC176	820x380x115
48way	VLLC10631001C01	VLLC177	873x380x115

MCCB 100A Main TPN Flush mount IP40 RAL 9003 Powder coat

Distribution	CAT Code	Order Code	Dimension
12way	VLLC10730401C01	VLLC178	-
18way	VLLC10730501C01	VLLC179	600x380x115
24way	VLLC10730601C01	VLLC180	654x380x115
30way	VLLC10730701C01	VLLC181	710x380x115
36way	VLLC10730801C01	VLLC182	763x380x115
42way	VLLC10730901C01	VLLC183	820x380x115
48way	VLLC10731001C01	VLLC184	873x380x115

MCCB 125A Main TPN Flush mount IP40 RAL 9003 Powder coat

Distribution	CAT Code	Order Code	Dimension
12way	VLLC10830401C01	VLLC185	-
18way	VLLC10830501C01	VLLC186	600x380x115
24way	VLLC10830601C01	VLLC187	654x380x115
30way	VLLC10830701C01	VLLC188	710x380x115
36way	VLLC10830801C01	VLLC189	763x380x115
42way	VLLC10830901C01	VLLC190	820x380x115
48way	VLLC10831001C01	VLLC191	873x380x115

MCCB 160A Main TPN Flush mount IP40 RAL 9003 Powder coat

Distribution	CAT Code	Order Code	Dimension
42way	VLLC10930901C01	VLLC192	820x380x115
48way	VLLC10931001C01	VLLC193	873x380x115



LOADCENTER PRODUCT RANGE WITH MCB

MCB 32A Main TPN Flush mount IP40 RAL 9003 Powder coat			
Distribution	CAT Code	Order Code	Dimension
12way	VLLC20230401C01	VLLC111	-
18way	VLLC20230501C01	VLLC112	600x380x115
24way	VLLC20230601C01	VLLC113	654x380x115
30way	VLLC20230701C01	VLLC114	710x380x115
36way	VLLC20230801C01	VLLC115	763x380x115

MCB 40A Main TPN Flush mount IP40 RAL 9003 Powder coat			
Distribution	CAT Code	Order Code	Dimension
12way	VLLC20330401C01	VLLC116	-
18way	VLLC20330501C01	VLLC117	600x380x115
24way	VLLC20330601C01	VLLC118	654x380x115
30way	VLLC20330701C01	VLLC119	710x380x115
36way	VLLC20330801C01	VLLC120	763x380x115

MCB 50A Main TPN Flush mount IP40 RAL 9003 Powder coat			
Distribution	CAT Code	Order Code	Dimension
12way	VLLC20430401C01	VLLC121	-
18way	VLLC20430501C01	VLLC122	600x380x115
24way	VLLC20430601C01	VLLC123	654x380x115
30way	VLLC20430701C01	VLLC124	710x380x115
36way	VLLC20430801C01	VLLC125	763x380x115

MCB 63A Main TPN Flush mount IP40 RAL 9003 Powder coat			
Distribution	CAT Code	Order Code	Dimension
12way	VLLC20530401C01	VLLC126	-
18way	VLLC20530501C01	VLLC127	600x380x115
24way	VLLC20530601C01	VLLC128	654x380x115
30way	VLLC20530701C01	VLLC129	710x380x115
36way	VLLC20530801C01	VLLC130	763x380x115
42way	VLLC20530901C01	VLLC131	820x380x115
48way	VLLC20531001C01	VLLC132	873x380x115


MCB 80A Main TPN Flush mount IP40 RAL 9003 Powder coat

Distribution	CAT Code	Order Code	Dimension
12way	VLLC20630401C01	VLLC133	-
18way	VLLC20630501C01	VLLC134	600x380x115
24way	VLLC20630601C01	VLLC135	654x380x115
30way	VLLC20630701C01	VLLC136	710x380x115
36way	VLLC20630801C01	VLLC137	763x380x115
42way	VLLC20630901C01	VLLC138	820x380x115
48way	VLLC20631001C01	VLLC139	873x380x115

MCB 100A Main TPN Flush mount IP40 RAL 9003 Powder coat

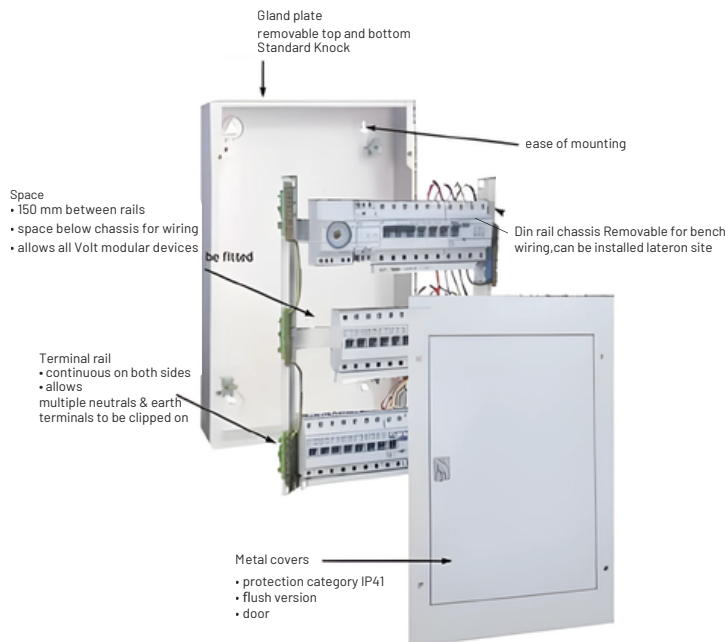
Distribution	CAT Code	Order Code	Dimension
12way	VLLC20730401C01	VLLC140	-
18way	VLLC20730501C01	VLLC141	600x380x115
24way	VLLC20730601C01	VLLC142	654x380x115
30way	VLLC20730701C01	VLLC143	710x380x115
36way	VLLC20730801C01	VLLC144	763x380x115
42way	VLLC20730901C01	VLLC145	820x380x115
48way	VLLC20731001C01	VLLC146	873x380x115

MCB 125A Main TPN Flush mount IP40 RAL 9003 Powder coat

Distribution	CAT Code	Order Code	Dimension
12way	VLLC20830401C01	VLLC147	-
18way	VLLC20830501C01	VLLC148	600x380x115
24way	VLLC20830601C01	VLLC149	654x380x115
30way	VLLC20830701C01	VLLC150	710x380x115
36way	VLLC20830801C01	VLLC151	763x380x115
42way	VLLC20830901C01	VLLC152	820x380x115
48way	VLLC20831001C01	VLLC153	873x380x115



VOLT Row type Enclosures are products suitable for din rail components. Volt row type DIN rail distribution boards are available from 1 row to 6 rows of 16 modules per row. The units feature a metal cover with hinged metal doors. The doors can be hinged for right or left opening. A removable DIN rail chassis facilitates wiring of the boards and installation on sites. A continuous rail on each side allows for multiple neutral and earth terminals to be clipped on. The boards can be fitted with all volt modular devices.



MODULAR ENCLOSURE

Incomers and outgoing ways for protection and controls. volt row type DIN rail boards are available for flush and surface mounting. The center distance between rows is 150mm which ensures adequate space for ease of wiring even with all devices fitted. Unused ways can be blanked off for subsequent use. Gland plates are removable and have pre-punched knockouts for ease of installation on sites.

- Protection category IP41, flush and surface versions
- Painted polyester powder coated in RAL 9010 White
- Comply with IEC 60529 standards
- Enclosure with high quality electro-galvanized steel
- Sheet of thickness up to 1.2mm

VOLT ROW TYPE DIMENSION

MODULAR ENCLOSURE 16 MODULES				
NO. of Rows	Part Number	Dimensions mm		
		H	W	D
2	KFMI-1R-16M-F	300	400	115
3	KFMI-2R-16M-F	450	400	115
4	KFMI-3R-16M-F	600	400	115
5	KFMI-4R-16M-F	750	400	115
6	KFMI-5R-16M-F	900	400	115
7	KFMI-6R-16M-F	1050	400	115



PRODUCT SCOPE

VOLT KVM- series Plastic Case Circuit Breaker (the abbreviation: breaker) is a new circuit breaker with patented advance technology. The breaker with compact size while high breaking loading, Short electric arc and anti-electric shocking.

It is the best application for landing and watercraft power system. the Rated Insulation Voltage 1000V, use for AC 50Hz or 60Hz, Use for the application that the circuit is not be converted frequency or the motor not be start-up frequency under the Rated Current 800A. This breaker has overload, Short circuit and under-voltage to prevent the circuits and the power supply system from being damaged.

The breaker can be installed vertically or horizontally.

The breaker complies with GB/T 14048.2、IEC60947-2

PRODUCT ADVANTAGE

- 1.From 15A to 800A
- 2.Up to 85kA
- 3.MCCB suited for 55 °C

SELECTION

The four major components of MCCB include for selection:

- 1.Frame
- 2.Operating mechanism
- 3.Arc extinguisher
- 4.Trip unit

APPLICATIONS

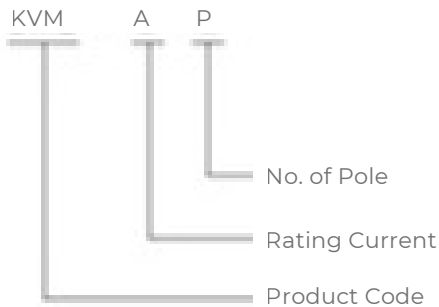
Volt (MCCBs) are designed to handle high currents and are used in heavy-duty applications such as adjustable trip sett applications with low currents, protecting motors, protecting capacitor banks, welding machines, protecting generators, and electric feeders.

FUNCTIONS

- 1.Protection against overload
- 2.Electric fault protection
- 3.Switching the circuits on and off



DEFINATION AND CLASSIFICATION



Connection mode: The Front wiring

WORKING CONDITIONS AND INSTALLATION CONDITIONS

The circuit breaker shall be meet the conditions as follows:

1. Altitude $\leq 2000\text{m}$.
2. The working climate temperature $-5^{\circ}\text{C} \sim +55^{\circ}\text{C}$.
3. Anti-humidity.
4. Anti- salt spray and oil mist.
5. Anti-fungal.
6. The maximum perpendicularity is less than 22.5° .
7. Working normally under vibration of watercraft.
8. No explosive or conduct or corrosive air or dust, which may cause explosion or corrosion or short circuit.
9. No rain or snow covered.

THE MAIN TECHNICAL SPEC

Rated operation voltage: AC 230V/400V 60Hz

Rated insulation voltage: 1000V

Rated impact withstand voltage: 8KV

Rated current: 20A、30A、40A、50A、70A、100A、125A、150A、200A、250A、300A、400、500、630、800A

The breaking load: $I_{cs}=I_{cu}=50\text{kA}/230\text{V}$; $I_{cs}=I_{cu}=20\text{kA}/400\text{V}$

Over-current tripper is composed by thermal long-delay tripper with inverse time-limit and electromagnetic instantaneous tripper.



MODEL NUMBER SELECTION:-

pole	In	Capacity Icn	Model
2P	16A	7.5KA, 10KA, 14KA, 25KA, 36KA, 50KA	KVM-16A-2P
	20A		KVA-20A-2P
	25A		KVA-25A-2P
	32A		KVM-32A-2P
	40A		KVM-40A-2P
	50A		KVM-50A-2P
	60A		KVM-60A-2P
	80A		KVA-80A-2P
	100A		KVM-100A-2P
	125A		KVM-125A-2P
	150A		KVM-150A-2P
	160A		KVM-160A-2P
	200A		KVM-200A-2P
	225A		KVM-225A-2P
	250A		KVM-250A-2P

pole	In	Capacity Icn	Model
3P	16A	7.5KA, 10KA, 14KA, 25KA, 36KA, 50KA	KVM-16A-3P
	20A		KVA-20A-3P
	25A		KVA-25A-3P
	32A		KVM-32A-3P
	40A		KVM-40A-3P
	50A		KVM-50A-3P
	60A		KVM-60A-3P
	80A		KVA-80A-3P
	100A		KVM-100A-3P
	125A		KVM-125A-3P
	150A		KVM-150A-3P
	160A		KVM-160A-3P
	200A		KVM-200A-3P
	225A		KVM-225A-3P
	250A		KVM-250A-3P

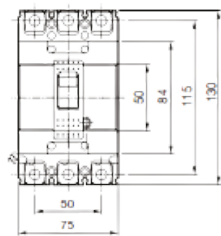
pole	In	Capacity Icn	Model
4P	16A	7.5KA, 10KA, 14KA, 25KA, 36KA, 50KA	KVM-16A-4P
	20A		KVA-20A-4P
	25A		KVA-25A-4P
	32A		KVM-32A-4P
	40A		KVM-40A-4P
	50A		KVM-50A-4P
	60A		KVM-60A-4P
	80A		KVA-80A-4P
	100A		KVM-100A-4P
	125A		KVM-125A-4P
	150A		KVM-150A-4P
	160A		KVM-160A-4P
	200A		KVM-200A-4P
	225A		KVM-225A-4P
	250A		KVM-250A-4P



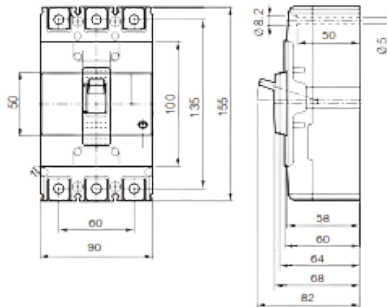
THE RELATED CHARACTERISTICS

Circuit breaker for power distribution			
Rated current: $I_n(A)$	Thermal release tripper		Action current of electromagnetic tripper
	$1.05I_n$ (low temp.) Inactive time(hour)	$1.30I_n$ (high temp.) Active time(hour)	
$20 \leq I_n \leq 63$	1	1	$10x(\pm 20\%) I_n$
$63 < I_n \leq 800$	2	2	

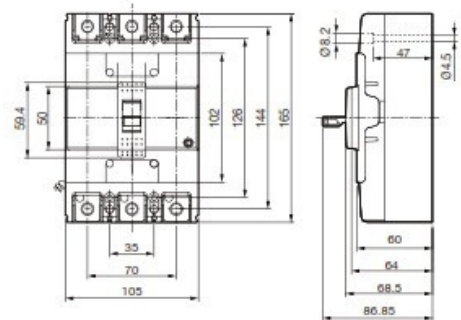
AF		100 AF	125 AF		150 AF		
Type		S-Type	N-Type	S-Type	H-Type	N-Type	S-Type
Pole	3p	KVM 103b	KVM 203b	KVM 203b	KVM 203b	KVM 303b	KVM 303b
	4p	KVM 103bz	KVM 203bz	KVM 203bz	KVM 203bz	KVM 303bz	KVM 303bz
Rated current, In Rated operational	A	15,20,30,40,50,60,75,100	15,20,30,40,50,60,75,100 ,125			100,125,150,175,200,225,250	
voltage, Ue	AC (V)	690					
Rated insulation voltage, Ui	V	1000					
Rated impulse withstand voltage, Uimp	KV	8					
Rated Short-circuit capacity (Icu) KA (sym), IEC60947-2							
690 V	AC	2.5	2.5	5	10	2.5	5
480 / 500 V		7.5	7.5	10	35	7.5	10
415 / 460 V		14	14	18	50	14	18
380 V		18	18	22	50	18	22
220 / 250 V		30	30	35	100	30	35100
Dimensions	W×H×D	100	100	100	100	100	100
		75×130×60mm	90×155×60mm		105×165×60mm		
	3p	(Fig.1)	(Fig.2)		(Fig.3)		



(Fig. 1)



(Fig. 2)



(Fig. 3)



RATED VALUES OF THE CIRCUIT BREAKER

Model	Shell frame level Rated current (A)	Rated voltage (V)	Rated short-circuit breaking Capacity level	Rated ultimate short-circuit breaking capacity Icu (KA)	Rated service short-circuit breaking capacity Ics (KA)	Circuit breaker rated current (A)	Number of Poles	Flashover distance (mm)
KVM-125	125	DC 250 V	L	15	10	16, 20, 25, 32, 40, 50, 63, 80, 100, 125	2	≤ 50
			M	20	15			
		AC 400 V	L	35	26		2,3,4	
			M	50	35			
			H	85	50		3	
		AC 690 V	L	10	5		2,3,4	
			M	20	10			
			H	20	10		3	
		KVM1-250	250	DC 250 V	L		20	
M	25				18			
AC 400 V	L			35	25	2,3,4		
	M			50	35			
	H			85	50	3		
AC 690 V	L			10	5	2,3,4		
	M			20	10			
	H			20	10	3		
KVM1-400	400			AC 400 V	L	50	35	225, 250, 315, 350, 400,
		M	65		42			
		H	100		65			
		AC 690 V	L	15	8			
			M	20	10			
KVM1-630	630	AC 400 V	L	50	35	400, 500, 630	3, 4	
			M	65	42			
			H	100	65			
		AC 690 V	L	15	8			
			M	20	10			
KVM1-800	800	AC 400 V	M	75	50	630, 700, 800	3	
			H	100	65			
		AC 690 V	M	30	15			

Overcurrent release operation characteristics of the circuit breaker for the power distribution

Serial number	Test current name	I/ I _n	Conventional time	Initial state
1	Conventional non-tripping current	1.05	2h (I _n >63)	Cold state
			1h (I _n ≤63)	
2	Conventional tripping current	1.30	2h (I _n >63)	Start immediately after the test in S/N 1
			1h (I _n ≤63)	



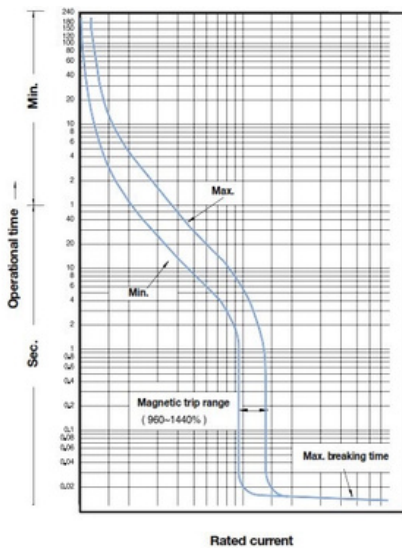
Overcurrent release operation characteristics of the circuit breaker for the motor protection

Serial number	Test current name	I/ In	Conventional time	Initial state
1	Conventional non-tripping current	1.0	2h	Cold state
2	Conventional tripping current	1.2	2h	Start immediately after the test in S/N 1

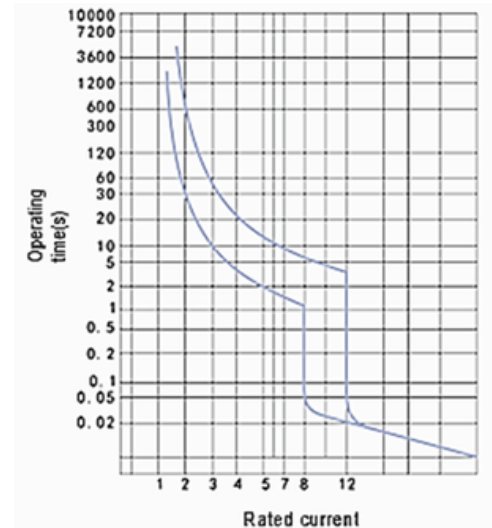
CHARACTERISTICS CURVES

The three main criteria while selecting MCCBs are: The rated working voltage (U_e) of the MCCB should be similar to the system voltage. The trip value of the MCCB should be adjusted according to the current drawn by the load. The breaking capacity of the currents MCCB must be higher than the theoretical possible fault

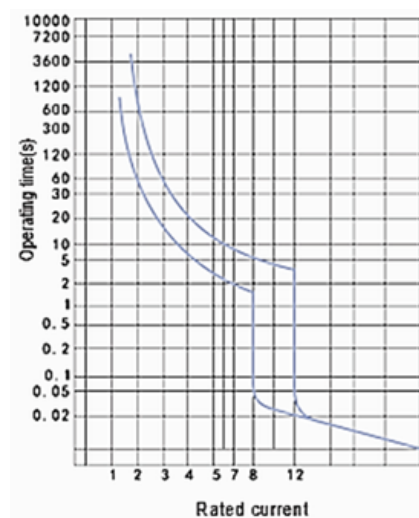
Operation curves of KVM1-125



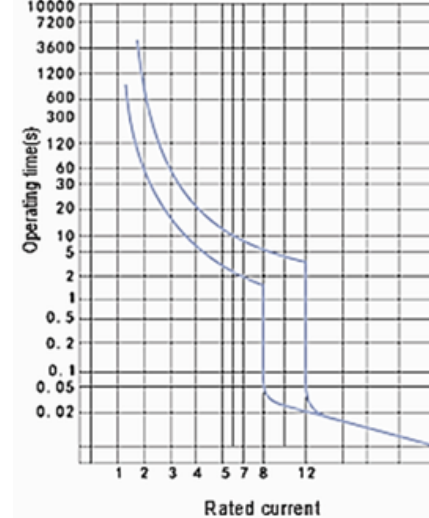
Operation curves of KVM1-250



Operation curves of KVM1-400



Operation curves of KVM1-630, 800





APPEARANCE AND INSTALLATION DIMENSION

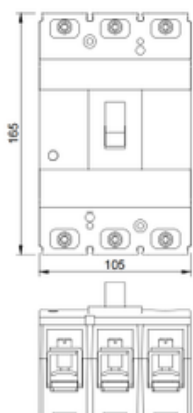


Figure 1: KVM-250 A

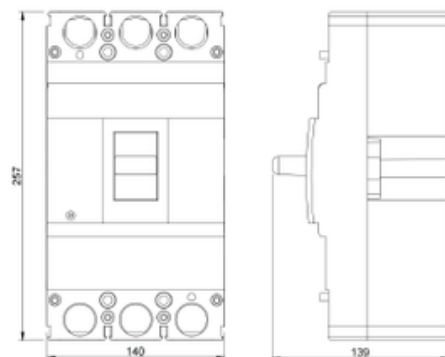


Figure 2: KVM-400 A

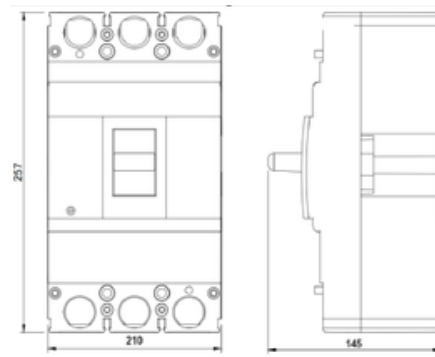


Figure 3: KVM-500A TO 800A

TEMPERATURE DERATING

The Maximum permissible current in circuit breaker depends on the ambient temperature where the circuit breaker is placed. Ambient temperature is the temperature inside the enclosure or switch board in which the circuit breaker are installed . the reference temperature is 55 °C

	Amb.temp	-5°C	0°C	10°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C
Calibrated for 55°C	In=15 to 30	111.90%	111.20%	110.50%	109.30%	107.90%	106.10%	104.90%	103.30%	102.60%	101.15%	100.00%
	In=40 to 100	110.50 %	109.80%	108.90%	107.70%	106.60%	105.20%	104.10%	103.20%	101.90%	100.90%	100.00%
	In=100 to 225	114.60 %	112.90%	110.60%	109.50%	107.80%	106.60%	104.80%	103.40%	102.30%	101.20%	100.00%
	In=250	112.00 %	111.90%	111.20%	110.50%	109.30%	107.90%	106.10%	104.90%	103.30%	102.60%	100.00%

Model	Temperature	+ 40°C	+ 45°C	+ 50°C	+ 55°C
KVM1-125		1	0.95	0.89	0.84
KVM1-250		1	0.96	0.91	0.87
KVM1-400		1	0.94	0.87	0.80
KVM-630.800		10	0.93	0.88	0.83

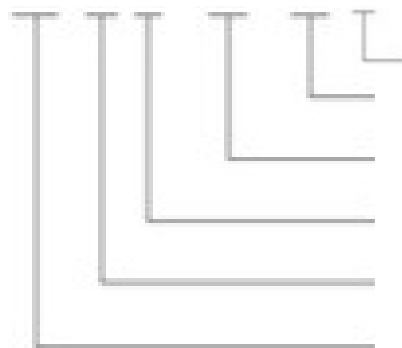


PRODUCT ADVANTAGE

1. The shell frame is of high grade (18 modulus BOA), high breaking capacity up to (10kA), and strong adaptability of accessories.
2. The wiring column has the advantage of higher safety.
3. Current-limiting contact system, magnetic blown arc extinguishing device, avoid products and equipment to withstand large short circuit current, improve product arc extinguishing Ability to ensure the improvement of breaking capacity.
4. The shell and function keys are made of imported PA nylon with high flame retardant, high temperature resistance and impact resistance.
5. Its shape is novel, its structure is reasonable, and it has many patent protection.

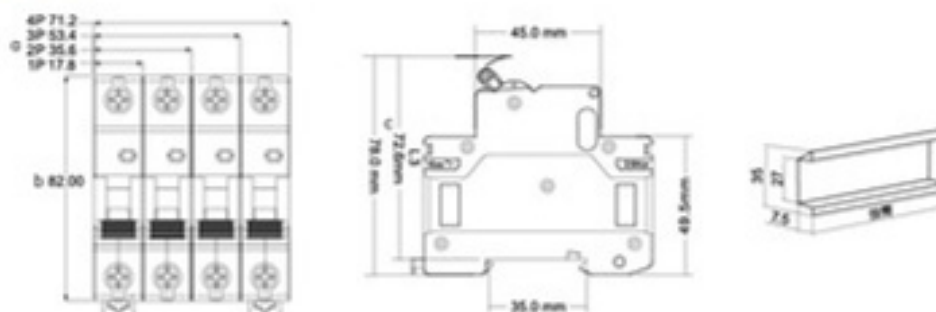
MODEL AND ITS MEANING

KCB C A P 80 M/H



M(6KA) : H(10KA)
Rating Current Frame
No. of Pole
Rating Current
Curve Circuit Breaker
Product code

OUTLINE DIMENSION





Available from 6 A to 63A 1P / 2P/ 3P and 4P, And a high breaking capacity (6KA & 10KA).

Din rail type

Suitable For 55 °C

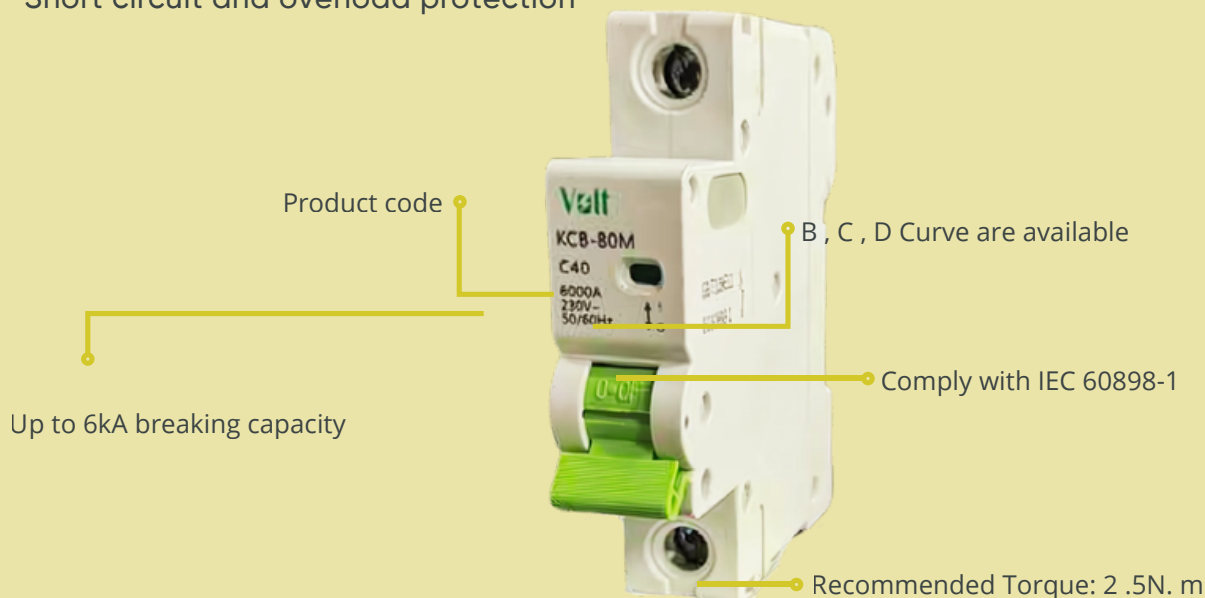
FUNCTION

Protection of circuits against short-circuit currents;
Protection of circuits against overload currents; overload currents;
Isolation Switch

PRODUCT APPLICATIONS

80 M Volt (MCB) circuit breakers are used in domestic installation, as well as in commercial and industrial electrical distribution systems.

Short circuit and overload protection



Temperature derating

The Maximum permissible current in circuit breaker depends on the ambient temperature where the circuit breaker is placed. Ambient temperature is the temperature inside the enclosure or switch board in which the circuit breaker are installed . the reference temperature is 55 °C

Temperature	-10 °C	0 °C	10 °C	20 °C	30 °C	40 °C	50 °C	55 °C	60 °C
Temperature Compensation coefficient	1.35	1.30	1.25	1.20	1.15	1.10	1.05	1.00	0.95



MCB TECHNICAL PARAMETER

Product model			VOLT				
In accordance with Standard:IEC60898-1							
			1P	2P	3P	4P	
Rating current of shell bracket		A	80				
Electrical properties							
Rated working voltage		Ue	VAC	230/400	400	400	400
Rated current		In	A	6, 10, 16, 20, 25, 32, 40, 50, 63, 80			
Rated Insulation voltage		Ui	V	500			
Rated Impulse Voltage		Uimp	KV	4			
Breakdown Type limit							
Split type				M/H			
Breaking capacity operating		Icn	kA	6/10			
Breaking capacity Force		Ic%Icn		100% / 75%			
Curve type				B, C, D			
Release type				Thermomagnetic			
Service life(O~CO)	Machinery	Actual average	20000				
		Standard value	8500				
	Electrical	Actual average	10000				
		Standard value	1500				
Control and indication							
Auxiliary contact			Optional				
Alarm contact			Optional				
Shunt release			Optional				
Under release			Optional				
Voltage release			Optional				
Connection and installation							
Protection grade		All sides		IP40			
		Connection port		IP20			
Handle lock			ON/OFF Position				
Connection ability		mm2		1~35			
Use ambient temperature		℃		-30~+70			
Humidity and heat resistance				2			
Altitude		m		≤2000			
Relative humidity of air				+20℃ ≤95%; +40℃ ≤50%			
Pollution grade				3			
Installation environment				Without significant vibration and impact			
Installation category				III			
Installation mode				DIN Standard guide rail			
Shape dimensions(mm) Widthx HeightxDepth	a		17.8	35.6	53.4	71.2	
	b		82	82	82	82	
	c		72.6	72.6	72.6	72.6	
Weight	g		116.5	238.6	360.3	477.5	



MODEL NUMBER SELECTION:-

Pole	In	Capacity Icn	Model
1P	6A	6KA	KCB-6M-1P
	10A		KCB-10M-1P
	16A		KCB-16M-1P
	20A		KCB-20M-1P
	25A		KCB-25M-1P
	32A		KCB-32M-1P
	40A		KCB-40M-1P
	63A		KCB-63M-1P
	80A		KCB-80M-1P
	6A	10KA	KCB-6H-1P
	10A		KCB-10H-1P
	16A		KCB-16H-1P
	20A		KCB-20H-1P
	25A		KCB-25H-1P
	32A		KCB-32H-1P
	40A		KCB-40H-1P
	63A		KCB-63H-1P
	80A		KCB-80H-1P

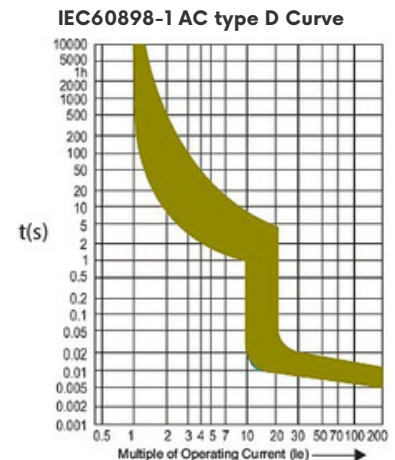
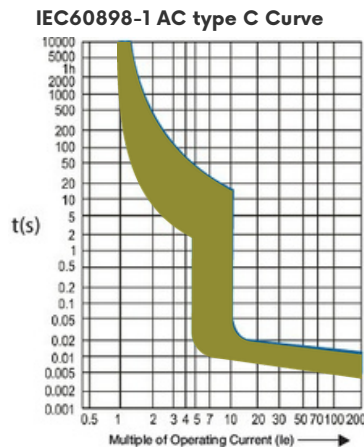
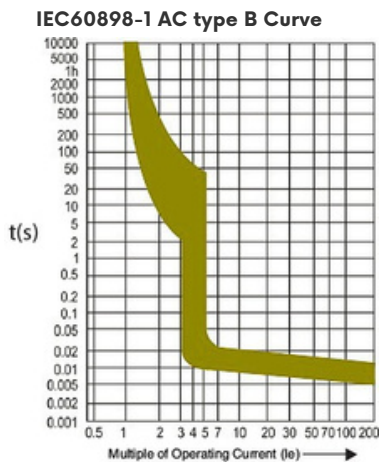
Pole	In	Capacity Icn	Model
2P	6A	6KA	KCB-6M-2P
	10A		KCB-10M-2P
	16A		KCB-16M-2P
	20A		KCB-20M-2P
	25A		KCB-25M-2P
	32A		KCB-32M-2P
	40A		KCB-40M-2P
	63A		KCB-63M-2P
	80A		KCB-80M-2P
	6A	10KA	KCB-6H-2P
	10A		KCB-10H-2P
	16A		KCB-16H-2P
	20A		KCB-20H-2P
	25A		KCB-25H-2P
	32A		KCB-32H-2P
	40A		KCB-40H-2P
	63A		KCB-63H-2P
	80A		KCB-80H-2P

Pole	In	Capacity Icn	Model
3P	6A	6KA	KCB-6M-3P
	10A		KCB-10M-3P
	16A		KCB-16M-3P
	20A		KCB-20M-3P
	25A		KCB-25M-3P
	32A		KCB-32M-3P
	40A		KCB-40M-3P
	63A		KCB-63M-3P
	80A		KCB-80M-3P
	6A	10KA	KCB-6H-3P
	10A		KCB-10H-3P
	16A		KCB-16H-3P
	20A		KCB-20H-3P
	25A		KCB-25H-3P
	32A		KCB-32H-3P
	40A		KCB-40H-3P
	63A		KCB-63H-3P
	80A		KCB-80H-3P

Pole	In	Capacity Icn	Model
4P	6A	6KA	KCB-6M-4P
	10A		KCB-10M-4P
	16A		KCB-16M-4P
	20A		KCB-20M-4P
	25A		KCB-25M-4P
	32A		KCB-32M-4P
	40A		KCB-40M-4P
	63A		KCB-63M-4P
	80A		KCB-80M-4P
	6A	10KA	KCB-6H-4P
	10A		KCB-10H-4P
	16A		KCB-16H-4P
	20A		KCB-20H-4P
	25A		KCB-25H-4P
	32A		KCB-32H-4P
	40A		KCB-40H-4P
	63A		KCB-63H-4P
	80A		KCB-80H-4P



TRIPPING CURVES



TYPE "B" CHARACTERISTICS

Developed primarily to protect conductors and low level signal devices such as PLCs instantaneous trip is three to five times the rated current of the Supplementary Protector ($3 \sim 5 \times I_n$). The fast trip time of these devices minimizes damage to control circuit conductors from low-level faults.

TYPE "C" CHARACTERISTICS

Developed primarily for applications with moderate inrush currents such as lighting, control circuits and appliances. Instantaneous trip is five to ten times the rated current of the Supplementary Protector ($5 \sim 10 \times I_n$). The higher instantaneous trip level prevents nuisance tripping, and components being protected can typically withstand higher fault currents without being damaged.

TYPE "D" CHARACTERISTICS

Developed primarily for applications with high inrush currents, i.e., transformers, and motor. Instantaneous trip is ten to twenty times the rated current of the Supplementary Protector ($10 \sim 14 \times I_n$). The higher instantaneous trip level prevents nuisance tripping, and components being protected can typically withstand higher fault currents without being damaged.



PRODUCT FUNCTION

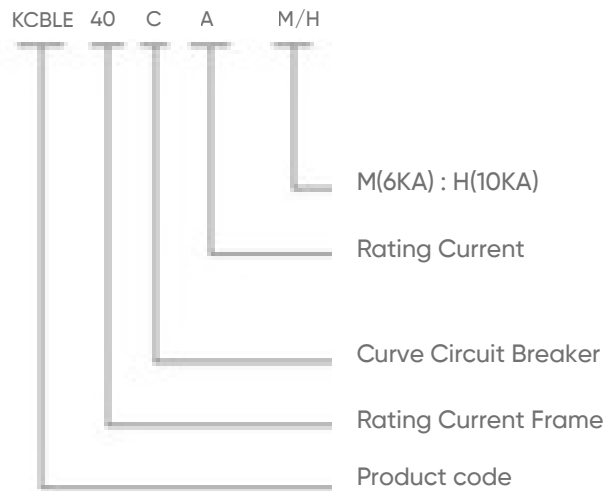
- 1.High breaking capacity, strong practicability of accessories.
- 2.Combined terminal with touch protection and red and green safety indication, higher safety
- 3.Current limiting contact system to avoid short circuit current of products and equipment, increase the service life of monthly equipment.
- 4.shell and some functional parts are imported and exported high flame retardant, high temperature resistance, impact resistant plastics made of
- 5.The appearance is beautiful, the volume is small, the width is only 36mm
- 6.Leakage function may withdraw, suitable each kind of place.
- 7.May make the rated leakage action current adjustable.
- 8.L pole N pole to have the overload protection function.
- 9.In accordance with Standard:IEC61009-1

PRODUCT ADVANTAGE

- 1.The shell frame has a high 1P+N double breakpoint (18 modulus 40A) and a high breaking capacity (6KA & 10KA).
It has contact position indicating window, and has higher security.
- 2.Current-limiting contact system, magnetic blown arc extinguishing device, avoid products and equipment to withstand large short-circuit current, improve product arc extinguishing.
- 3.Ability to ensure the improvement of breaking capacity.
- 4.The shell and function keys are made of imported PA nylon with high flame retardant, high temperature resistance and impact resistance.
- 5.Its shape is novel, its structure is reasonable, and it has many patent protections.
The rated residual current is 30 ma.



MODEL AND ITS MEANING



MODEL NUMBER SELECTION:-

Pole	In	Capacity Icn	Model
1P+1N	10A	6KA	KCBLE-10M-1P+1N
	16A		KCBLE-16M-1P+1N
	20A		KCBLE-20M-1P+1N
	32A		KCBLE-32M-1P+1N
	40A		KCBLE-40M-1P+1N
	10A	10KA	KCBLE-10H-1P+1N
	16A		KCBLE-16H-1P+1N
	20A		KCBLE-20H-1P+1N
	25A		KCBLE-25H-1P+1N
	32A		KCBLE-32H-1P+1N
	40A		KCBLE-40H-1P+1N

PRODUCT APPLICATION





RCBO TECHNICAL PARAMETER

Product model			VOLT
In accordance with Standard: IEC61009-1			
Pole number			1P+N double breakpoint (18 modulus 40A)
Electrical properties			
Rated working voltage	Ue	VAC	230
Rated current	In	A	10, 16, 20, 25, 32, 40
Leakage tripping type			A/AC
Rated Insulation voltage	Ui	V	500
Rated Impulse Voltage Breakdown Type limit	Uimp	KV	4
Split type			M/H
Breaking capacity operating	Icn	kA	6000/10000
Breaking capacity Force	Ic%Icn		100% / 75%
Curve type			B, C, D
Release type			Thermomagnetic
Service life(O~CO)	Machinery	Actual average	20000
		Standard value	8500
	Electrical	Actual average	10000
		Standard value	1500
Control and indication			
Auxiliary contact			Optional
Alarm contact			Optional
Shunt release			Optional
Under release			Optional
Voltage release			Optional
Connection and installation			
Protection grade	All sides		IP40
	Connection port		IP20
Handle lock			ON/OFF Position
Connection ability	mm ²		1~35
Use ambient temperature	°C		-30~+70
Humidity and heat resistance			2
Altitude	m		≤2000
Relative humidity of air			+20°C ≤95%; +40°C ≤50%
Pollution grade			3
Installation environment			Without significant vibration and impact
Installation category			III
Installation mode			DIN Standard guide rail
Shape dimensions(mm) Widthx HeightxDepth	a		72
	b		99
	c		72.6
Weight	g		462.5



DESCRIPTION

The range RCCBs is a sensitive current breaker designed to protect the user and their property from electric shock and potential fires by breaking the current as it passes through your consumer unit in the event of a detected imbalance or disruption to current path.

From 15A to 63A

Up to 50kA

Suited for 55 °C deg celsius

sensitivity: 30mA,100mA,300mA & 500mA

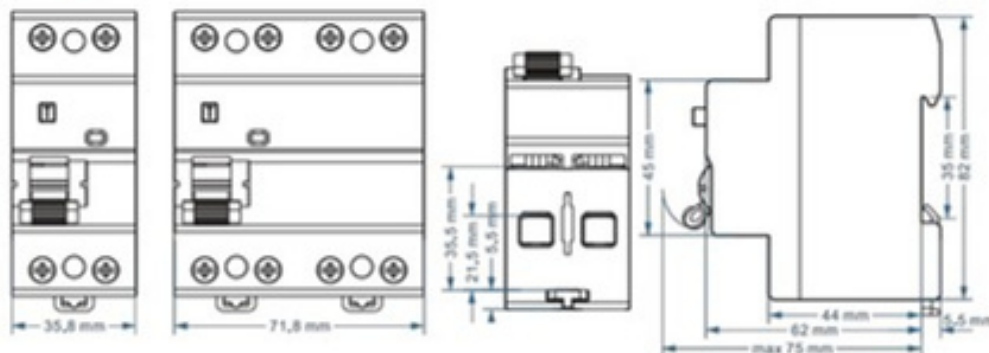
APPLICATIONS

Volt (RCCB's) are designed to protect equipment and people from low level ground faults. Typical applications include resistance and impedance heating systems; submersible pumps; semiconductor process equipment and wet location equipment.

FUNCTIONS

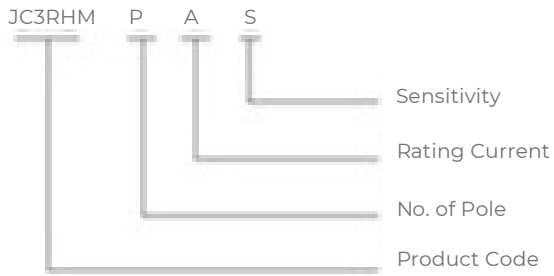
Protection against dangerous currents through body.

OUTLINE DIMENSION

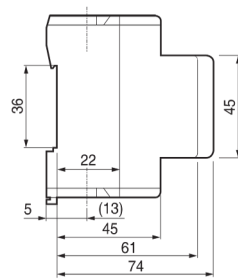




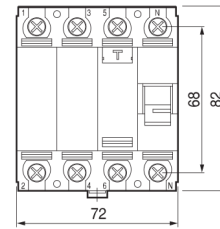
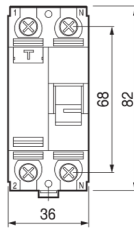
DEFINATION AND CLASSIFICATION



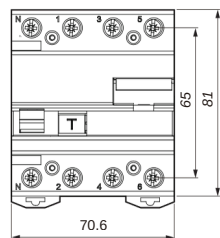
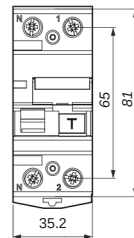
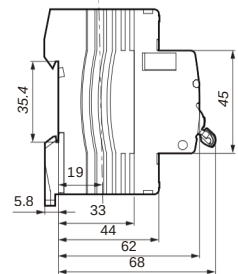
JC3RHM



Note: () 63AF.



JC3RHM-B (63AF)



JC3RHM TYPE MODEL NUMBER SELECTION:-

Pole	In	S	Model
1P+N	25A	30mA	JC3RHM 1P+N 25A 30mA
	32A		JC3RHM 1P+N 32A 30mA
	40A		JC3RHM 1P+N 40A 30mA
	63A		JC3RHM 1P+N 63A 30mA
	25A	100mA	JC3RHM 1P+N 25A 100mA
	32A		JC3RHM 1P+N 32A 100mA
	40A		JC3RHM 1P+N 40A 100mA
	63A		JC3RHM 1P+N 63A 100mA
	25A	300mA	JC3RHM 1P+N 25A 300mA
	32A		JC3RHM 1P+N 32A 300mA
	40A		JC3RHM 1P+N 40A 300mA
	63A		JC3RHM 1P+N 63A 300mA

Pole	In	S	Model
3P+N	25A	30mA	JC3RHM 3P+N 25A 30mA
	32A		JC3RHM 3P+N 32A 30mA
	40A		JC3RHM 3P+N 40A 30mA
	63A		JC3RHM 3P+N 63A 30mA
	25A	100mA	JC3RHM 3P+N 25A 100mA
	32A		JC3RHM 3P+N 32A 100mA
	40A		JC3RHM 3P+N 40A 100mA
	63A		JC3RHM 3P+N 63A 100mA
	25A	300mA	JC3RHM 3P+N 25A 300mA
	32A		JC3RHM 3P+N 32A 300mA
	40A		JC3RHM 3P+N 40A 300mA
	63A		JC3RHM 3P+N 63A 300mA



RCCB TECHNICAL PARAMETER

Product model			VOLT
In accordance with Standard:IEC61008-1			
Pole number			4P
Electrical properties			
Rated current	In	A	25, 40, 63, 80, 100
Type	Electromagnetic		
Type waveform of the earth leakage sensed)	A type		
Rated voltage	Ue	V	230/400
Rated sensitivity	In		30mA,100mA,300mA & 500mA
Rated Insulation voltage	Ui	V	500
Rated residual making and breaking capacity	Im	A	500 (In=25N40A) , 630(In=63A),
Rated frequency	50/60Hz		
Rated breaking capacity	6kA		
SCPDfuse	10000		
Break time under	In		≤0.1S
Rated impulse withstand voltage(1.2/50)	Uimp	V	6000
Dielectric test voltage at ind.Fr eq, for1 min	2.5kV		
Pollution degree	2		
Electrical life	2000		
Mechanical Properties			
Mechanical life	2000		
Contact position indicator	yes		
Protection degree	IP20		
Reference temperature for setting of thermal element	oC		30
Ambient temperature(with daily averages35oC)	oC		-5 ... +40
storagetemperature	oC		-25 ... +70
Installation			
Temin al connection type	Cable/U-type busbar/Pin-type busbar		
Temin al size top/bottom for cable	25/135mm' , 18-3/18-2AWG		
Temin al sze top/bottom for Bus bar	10/116mm' , 18-8/18-5AWG		
Tighteningtorque	2.5N*m I 22 In-lbs .		
Mounting	On DIN rail EN60715 (35mm)		
Connection	Fromtopor bottom		

STANDARDISED VALUES OF OPERATING TIME

TypeA: Zone 0.5 IΔn RCCB will not trip IΔnRCCB must trip within 300ms 5 IΔn RCCB must tripwithin 40ms

Type	INA	IΔNA	standard values of break time and non-actuating time at a residual current equal to						
			IΔN	2IΔN	5 IΔN	5IΔN or 0.25A	5A-200A, 500A	IΔN	
General	Any value	<0.03	0.3	0.15	-	0.04	0.04	0.04	Max . Break Times
		0.03	0.3	0.15	-	0.04	0.04	0.04	
		>0.03	0.3	0.15	0.04	-	-	0.04	



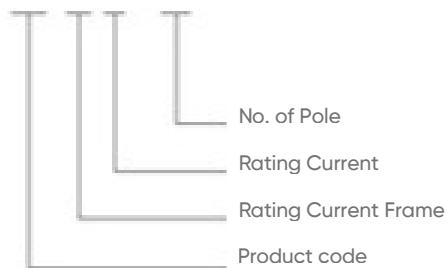
SCOPE OF APPLICATION

Miniature isolating switch series small disconnecter is suitable for AC 50HZ, rated working voltage 400V and below, rated current 125A and below distribution box control loop, mainly used as the main switch of terminal appliances, but also used to control all kinds of motors, small power electrical appliances and lighting. with obvious sub-, off-state indication and state locking function, super longevity and other advantages.

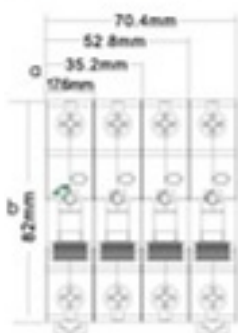
The product conforms to GB144048.3 and IEC 60947-3 standard

MODEL AND ITS MEANING

KCH 125 A P



OUTLINE DIMENSION



INSTALLATION



MINIATURE ISOLATING SWITCH

Product model			VOLT			
In accordance with Standard:IEC60898-1						
			1P	2P	3P	4P
Rating current of shell bracket		A	125			
Electrical properties						
Rated working voltage	Ue	VAC	230/400	400	400	400
Rated current	In	A	20, 25, 32, 40, 50, 63, 80, 100, 125			
Rated Insulation voltage	Ui	V	500			
Rated Impulse Voltage Breakdown Type limit	Uimp	KV	4			
Split type			None			
Breaking capacity operating	Icn	kA	None			
Breaking capacity Force	Ic%Icn		None			
Curve type			None			
Release type			None			
Service life(O~CO)	Machinery	Actual average	20000			
		Standard value	8500			
	Electrical	Actual average	10000			
		Standard value	1500			
Control and indication						
Auxiliary contact			None			
Alarm contact			None			
Shunt release			None			
Under release			None			
Voltage release			None			
Connection and installation						
Protection grade	All sides		IP40			
	Connection port		IP20			
Handle lock			ON/OFF Position(Belt lock)			
Connection ability	mm2		1~35			
Use ambient temperature	℃		-30~+70			
Humidity and heat resistance			2			
Altitude	m		≤2000			
Relative humidity of air			+20℃ ≤95%; +40℃ ≤50%			
Pollution grade			3			
Installation environment			Without significant vibration and impact			
Installation category			III			
Installation mode			DIN Standard guide rail			
Shape dimensions(mm) Widthx HeightxDepth	a		17.8	35.2	52.8	70.4
	b		82	82	82	82
	c		72.6	72.6	72.6	72.6
Weight	g		88.3	177.4	266.3	353.4



MODEL NUMBER SELECTION:-

pole	In	Model
1P	20A	KCH-20-1P
	25A	KCH-25-1P
	32A	KCH-32-1P
	40A	KCH-40-1P
	50A	KCH-50-1P
	63A	KCH-63-1P
	80A	KCH-80-1P
	100	KCH-100-1P
	125	KCH-125-1P

pole	In	Model
2P	20A	KCH-20-2P
	25A	KCH-25-2P
	32A	KCH-32-2P
	40A	KCH-40-2P
	50A	KCH-50-2P
	63A	KCH-63-2P
	80A	KCH-80-2P
	100	KCH-100-2P
	125	KCH-125-2P

pole	In	Model
3P	20A	KCH-20-3P
	25A	KCH-25-3P
	32A	KCH-32-3P
	40A	KCH-40-3P
	50A	KCH-50-3P
	63A	KCH-63-3P
	80A	KCH-80-3P
	100	KCH-100-3P
	125	KCH-125-3P

pole	In	Model
4P	20A	KCH-20-4P
	25A	KCH-25-4P
	32A	KCH-32-4P
	40A	KCH-40-4P
	50A	KCH-50-4P
	63A	KCH-63-4P
	80A	KCH-80-4P
	100	KCH-100-4P
	125	KCH-125-4P



CONTACT US

✉ info@alkhalefahfactory.com ☎ +966 9200 8432

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www.alkhalefahfactory.com 📍 AL-kharj road, New Industrial City, Riyadh, 14335, Saudi Arabia



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CONTACT US

✉ info@alkhalefahfactory.com ☎ +966 9200 8432

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