

# BREAKERS

## STANDARD FAMILY CODE IR 4000 SERIES VH DVM

Mounting Position	Horizontal
Control Voltage Rating Uc[Vdc]	24-36-48-72-110 <sup>1</sup>
Auxiliary Contact Blocks	5 a1 + 6 b0
Block Type	Reed
Arc chute Material	Ceramic
Main Contacts tips Material	AgSnO <sub>2</sub>
Arcing Contacts tips Material	AgW
Electric Diagram HC	42870779C
Layout Drawing HC	42870780C

Type			
Voltage	Holding System	Thermal Current	
		3000 A	4500 A
1800/ 3600 V	Holding Coil	<b>IR 4030VH DVM</b>	<b>IR 4045VH DVM</b>



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## Description

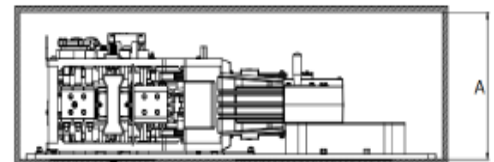
DC single pole, magnetic blowout, trip free, air circuit breaker. The closing mechanism is motor-operated independent type while the holding mechanism is magnetic type, provided with holding coil. The breaker is equipped with a direct acting over-current trip device, which may be either unidirectional or bi-directional. Reference standard IEC 60077.

Electrical Characteristics		
Rated Operational Voltage $U_{Ne}$ [Vdc] <sup>1</sup>	1800 / 3600	
Max Operational Voltage [Vdc]	2000 / 4000	
Rated Insulation Voltage $U_{Nm}$ [Vdc] @ OV3 / PD3	4800	
Rated Insulation Voltage $U_{Nm}$ [Vdc] @ OV4 / PD3A	3700	
Conventional Free Air Thermal Current [A] at 40°C <sup>2</sup>	3000/4500 <sup>1</sup>	
Rated Short Circuit Making and Breaking Capacity / Time constant [kA/ms]		
$T_1$	100 / 0 (Peak 140 kA)	55 / 0 (Peak 77kA)
$T_2$	60 / 15	50 / 15
$T_3$	50 / 40	50 / 30
$T_4$	35 / 100	50 / 50
Rated Duty Cycle	0-20s-CO-60s-CO	
Peak arc voltage [ $\hat{U}_{arc}$ ]	up to 3 × $U_{Nm}$	
Standard Bidirectional direct acting trip device [kA] <sup>1</sup>		
Setting Range@1800Vdc	3200 ÷ 5000	
Setting Range@3600Vdc	2000 ÷ 3200	
Blow Out Circuit Type	Indirect blow out Coil	

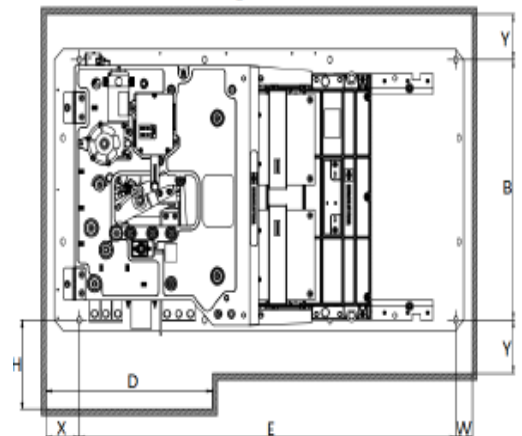
Minimum clearances [mm] from <sup>6</sup> :									
Rated Operational Voltage [V <sub>dc</sub> ]		A <sup>4</sup>	B	D	E	H	X	Y	W
1800	Metal Parts	410	650	540	1140	-	90	140	40
	Plastic Parts	360				-		90	
3600	Metal Parts	410				210	140		
	Plastic Parts	360				160	90		

Mechanical Characteristics	
Mechanical Endurance (cycles)	4×50000
Electrical durability [Ir @ Ur]	4×200
Shock and Vibrations (IEC61373)	Cat.1 – Class B
Weight [kg] for 3000 [A] / for 4500 [A]	190 / 215

Control Circuit	
Control Voltage Range	0.7Uc ÷ 1.25Uc
Operated by	D.C. Motor
Holding closed by	Holding Coil
Peak closing power and time [W x s]	500 x 0.01
Nominal closing power and time [W x s]	360 x 1.5
Holding Coil version	
Nominal holding power @ 20°C [W]	50
Controlled opening time: de-energize holding coil [ms]	< 50
Controlled opening time: opening coil (optional) [ms]	< 20
Controlled opening time: FOD (optional) [ms] <sup>6</sup>	4 ÷ 6
Tripping point adjustable by switching relay [Vdc]	0.7Uc ÷ 1.25Uc



This drawing is related to 36M.



## Auxiliary Circuit

Type	Reed Contacts (Vacuum Technology)
Voltage [Vdc]	24 / 36 / 48 / 72 / 110 <sup>1</sup>
Rated Current [A]	5
Maximum Breaking Power with Inductive Load $\tau = 2\text{ms}$ [W]	120
Maximum Breaking Current with Inductive Load $\tau = 2\text{ms}$ [A]	3
Maximum Breaking Voltage with Inductive Load $\tau = 2\text{ms}$ [V]	250
Minimum let-through Current at 24Vdc [mA]	5
Electrical Connections	Fast-on 2.5 x 0.8mm or customized LV Connection <sup>1</sup>

## Environmental Conditions

Stock Temperature Range	-50°C ÷ +85°C
Operational Temperature Range	-40°C ÷ +70°C
Clearance in air [mm]	40
Creepage distance [mm]	80
Comparative Tracking Index (CTI)	>600
Max Altitude without Performance Derating [m]	2000
Humidity <sup>5</sup>	10 ÷ 95% RH

<sup>1</sup> To be specified in order phase

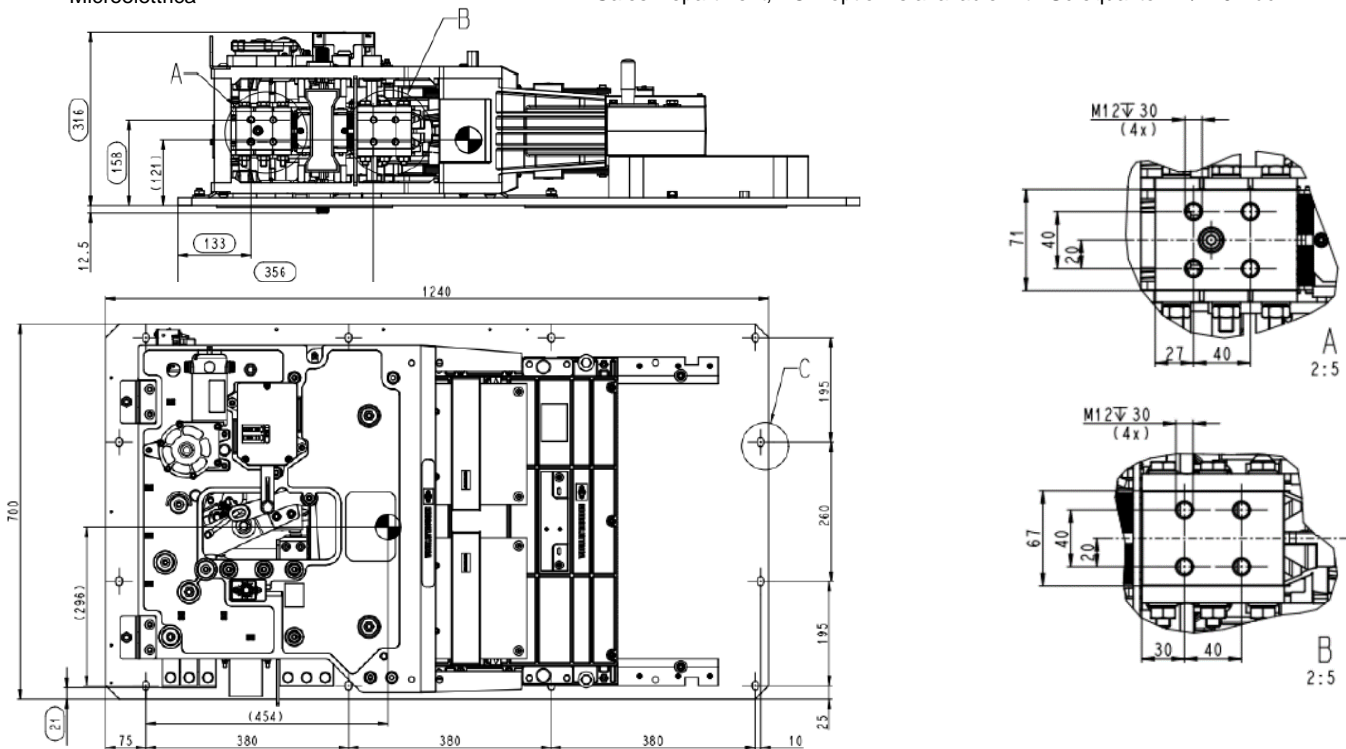
<sup>2</sup> Device cabled according IEC 60947

<sup>3</sup> Reduced distances should be approved by Microelettrica

<sup>4</sup> These quotes are referred to a 50% surface opening grid

<sup>5</sup> According to EN 50125-1

<sup>6</sup> For optional fast opening device (FOD) information please contact Microelettrica Sales Department, FOD option is available with U<sub>c</sub> equal to 24 / 110 Vdc



The technical specifications reported are not binding and they should be agreed in the contract.

For further technical information on our products visit [www.microelettrica.com](http://www.microelettrica.com)

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