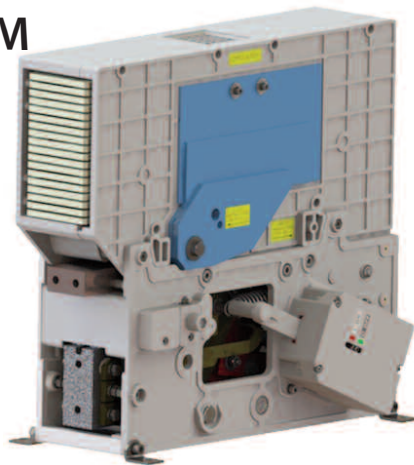


# HSCBs

## Standard Family Code IR 3000 F SERIES M



### 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 or permanent magnet. The breaker is equipped with a direct acting over-current trip device, which may be either unidirectional or bi-directional. Reference standard IEC 61992.

Family Code			
Voltage	Holding System	Thermal Current	
		1500 A	3000 A
900 V	Holding Coil	IR 3015 FC 09M	IR 3030 FC 09M
	Permanent Magnet	IR 3015 FP 09M	IR 3030 FP 09M
1800 V	Holding Coil	IR 3015 FC 18M	IR 3030 FC 18M
	Permanent Magnet	IR 3015 FP 18M	IR 3030 FP 18M

Type	IR3000 F
Number of Poles	1 NO
Mounting Position	Vertical
Control Voltage Rating $U_c$ [V <sub>dc</sub> ]	24 - 36 - 48 - 72 - 110 <sup>1</sup>
Auxiliary Contact Blocks	5 N.O. + 6 N.C.
Block Type	Reed
Arc chute Material	Ceramic
Main Contacts tips Material	AgSnO <sub>2</sub>
Arcing Contacts tips Material	AgW
Electric Diagram HC	42870370B
Electric Diagram PM	42870579B
Layout Drawing HC	42870555C
Layout Drawing PM	42870556C

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

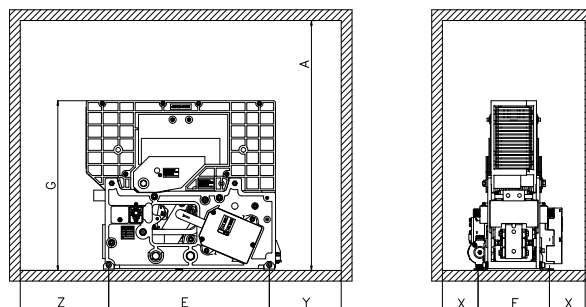
Electrical Characteristics	09M	18M
Rated Operational Voltage $U_{Ne}$ [V <sub>dc</sub> ] <sup>1</sup>	900	1800
Max Operational Voltage [V <sub>dc</sub> ]	1000	2000
Rated Insulation Voltage [V <sub>dc</sub> ]	2300	2300
Conventional Free Air Thermal Current [A] at 40°C <sup>2</sup>	1500 / 3000 <sup>1</sup>	
Breaking Capacity [kA/ms]		
Rated Short Circuit	50 / 31.5	30 / 31.5
Duty F: Maximum Fault	50 / 0	30 / 0
Duty E: Maximum Energy	32.5 / 20.5	25.2 / 16.8
Duty D: Distant Fault	6 / 31.5	6 / 31.5
Peak arc voltage x $U_{Ne}$ [ $\dot{U}_{arc}$ ]	up to 4 x $U_{Ne}$	
Standard direct acting trip device [kA] <sup>1</sup>		
Setting Range 1	1 ÷ 1.8	
Setting Range 2	1.5 ÷ 2.7	
Setting Range 3	2.2 ÷ 4	
Setting Range 4	3.3 ÷ 6	
Blow Out Circuit Type	Coil	

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

Minimum clearances [mm] from <sup>3</sup> :							
Rated Operational Voltage [V <sub>dc</sub> ]	A <sup>4</sup>	E	F	G	X	Y <sup>4</sup>	Z <sup>4</sup>
1800	Metal Parts	700	450	200	476	100	202 248
	Plastic Parts	600				50	150 198

<sup>3</sup> Reduced distances should be approved by M.S.

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



For further technical information, please contact M.S. or refer to the product technical specification

### Mechanical Characteristics

Mechanical Endurance (cycles)	6x50000
Electrical durability [In @ Un ]	4x200
Shock and Vibrations (IEC61373)	Cat.1 - Class B
Weight [kg]	54

### Control Circuit

Control Voltage Range	0.7Uc ÷ 1.25Uc
Operated by	D.C. Motor
Holding closed by	Holding Coil or Permanent Magnet
Peak closing power and time [W x s]	400 x 0.01
Nominal closing power and time [W x s]	200 x 1.5

#### Holding Coil version

Nominal holding power @ 20°C [W]	15
Nominal opening power @ 20°C [W]	0
Controlled opening time [ms]	< 50

#### Permanent Magnet version

Nominal holding power @ 20°C [W]	0
Nominal opening power and time @ 20°C [W x s]	400 x 0.02
Controlled opening time [ms]	< 20

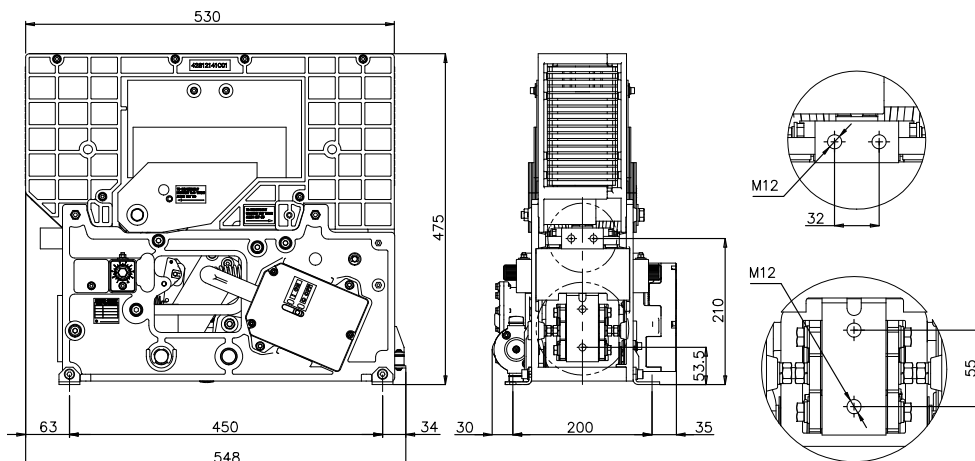
### Auxiliary Contacts

Type	Reed Contacts (Vacuum Technology)
Voltage [V <sub>dc</sub> ]	24 / 36 / 48 / 72 / 110
Rated Current [A]	5
Maximum Breaking Power with Inductive Load τ=2ms [W]	120
Maximum Breaking Current with Inductive Load τ=2ms [A]	3
Maximum Breaking Voltage with Inductive Load τ=2ms [V]	250
Minimum let-through Current at 24Vdc [mA]	5

### Environmental Conditions

Stock Temperature Range	-50°C ÷ +85°C
Operational Temperature Range	-30°C ÷ +70°C
Pollution Degree - Overvoltage Category (EN 50124-1)	PD3 - OV4
Clearance in air [mm]	14
Creepage distance [mm]	32.2
Comparative Tracking Index (CTI)	>600
Max Altitude without Performance Derating [m]	2000
Humidity <sup>5</sup>	10 ÷ 95% RH

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



**KNORR-BREMSE**



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