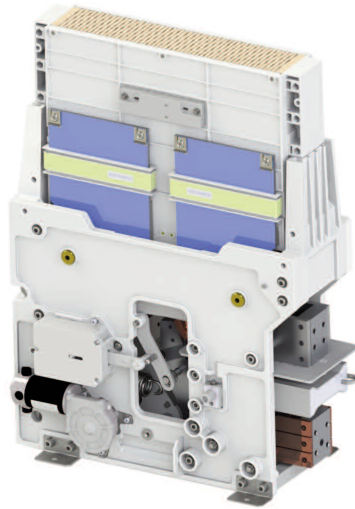


HSCBs

Standard Family Code IR 4000 SERIES F



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.

Unique Code			
Voltage	Holding System	Thermal Current	
		3000 A	4500 A
900 V	Holding Coil	IR 4030 FC 09M	IR 4045 FC 09M
	Permanent Magnet	IR 4030 FP 09M	IR 4045 FP 09M
1800 V	Holding Coil	IR 4030 FC 18M	IR 4045 FC 18M
	Permanent Magnet	IR 4030 FP 18M	IR 4045 FP 18M
3600 V	Holding Coil	IR 4030 FC 36M	IR 4045 FC 36M
	Permanent Magnet	IR 4030 FP 36M	IR 4045 FP 36M

Type	IR4000 F
Number of Poles	1 NO
Mounting Position	Horizontal
Control Voltage Rating [V _{dc}] ¹	24 - 36 - 48 - 72 - 110 ¹
Auxiliary Contact Blocks	5 N.O. + 6 N.C.
Block Type	Reed
Arc chute Material	Ceramic
Main Contacts tips Material	AgSnO ₂
Arcing Contacts tips Material	AgW
Electric Diagram HC / PM	42870649C / 42870648C
Layout Drawing HC / PM	42812339C / 42870668C

¹ To be specified in order phase.

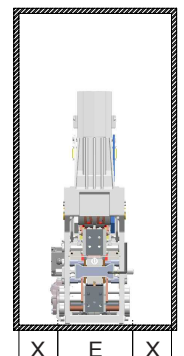
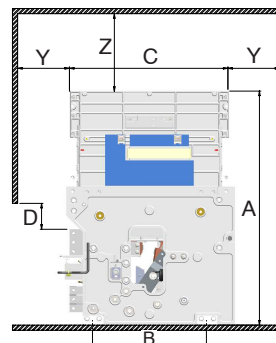
Electrical Characteristics	09M	18M	36M
Rated Operational Voltage U _{Ne} [V _{dc}] ¹	900	1800	3600
Max Operational Voltage [V _{dc}]	1000	2000	4000
Rated Insulation Voltage [V _{dc}]	2300	2300	3600
Conventional Free Air Thermal Current [A] at 40°C ²	3000 / 4500 ¹		
Breaking Capacity [kA/ms]			
Rated Short Circuit	125 / 100	90 / 63	50 / 63
Duty F: Maximum Fault	125 / 0	90 / 0	50 / 0
Duty E: Maximum Energy	63 / 50	50 / 31.5	35 / 31.5
Duty D: Distant Fault	8 / 100	8 / 63	8 / 63
Peak arc voltage x U _{Ne} [Ü _{arc}]	up to 4 x U _{Ne}		
Standard direct acting trip device [kA] ¹			
Setting Range 1	1000 ÷ 1600		
Setting Range 2	1600 ÷ 2600		
Setting Range 3	2500 ÷ 4000		
Setting Range 4	4000 ÷ 6400		
Setting Range 5	5800 ÷ 9300		
Setting Range 6	8000 ÷ 13000		
Setting Range 7	9400 ÷ 15000		
Setting Range 8	12500 ÷ 20000		
Blow Out Circuit Type	Coil		

² Device cabled according IEC 60947

Minimum clearances [mm] from ³ :									
Rated Operational Voltage [V _{dc}]		A ⁴	B	C	D	E	X	Y	Z
900	Metal Parts	903	440	612	100	289	150	200	300
	Plastic Parts				100		150	200	200
Metal Parts	100				150		200	300	
Plastic Parts	100				150		200	200	
1800	Metal Parts	903	440	612	100	289	150	200	300
	Plastic Parts				100		150	200	200
Metal Parts	100				150		200	300	
Plastic Parts	100				150		200	200	
3600	Metal Parts	903	440	612	100	289	150	200	300
	Plastic Parts				100		150	200	200
Metal Parts	100				150		200	300	
Plastic Parts	100				150		200	200	

³ Reduced distances should be approved by M.S.

⁴ 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



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Mechanical Characteristics

Mechanical Endurance (cycles)	8x25000
Electrical durability [In @ Un]	4x200
Shock and Vibrations (IEC61373)	Cat.1 - Class B
Weight [kg]	180

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]	500 x 0.01
Nominal closing power and time [W x s]	360 x 1.5
Holding Coil / Permanent Magnet version	
Nominal holding power @ 20°C [W]	50 / 0
Nominal opening power @ 20°C [Wxs]	0 / 500 x 0.02
Controlled opening time [ms]	< 50 / <20

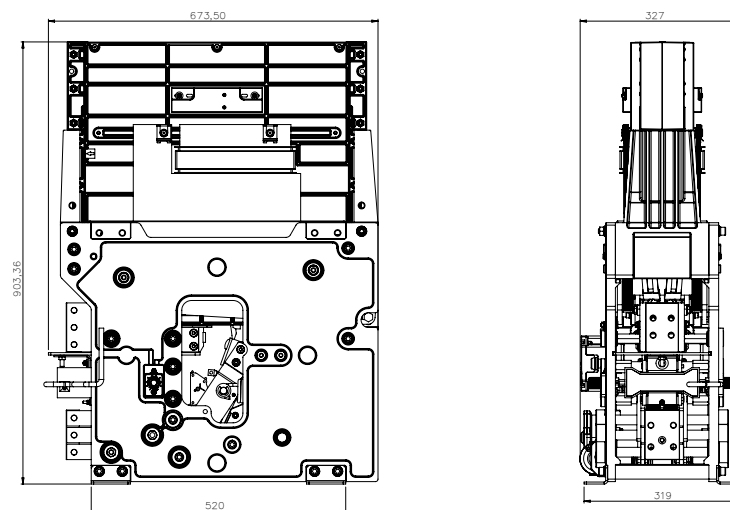
Auxiliary Contacts

Type	Reed Contacts (Vacuum Technology)
Voltage [V _{dc}]	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	-40°C ÷ +70°C
Pollution Degree - Overvoltage Category (EN 50124-1)	PD3A - OV4
Clearance in air [mm]	40
Creepage distance [mm]	80
Comparative Tracking Index (CTI)	>600
Max Altitude without Performance Derating [m]	2000
Humidity ⁵	10 ÷ 95% RH

⁵ According to EN 50125-1



KNORR-BREMSE



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