

BREAKERS

STANDARD FAMILY CODE IR6030 IR6040 IR6050 SERIES F

| | |
|---------------------------------|---|
| Mounting Position | Vertical |
| Control voltage rating Uc [Vdc] | 24 - 36 - 48 - 72 110 - 220 ¹ |
| Auxiliary Contact Blocks | 5 a1 + 6 b0 |
| Block Type | Reed or Sliding Contact |
| Arc chute Material | Ceramic |
| Main Contacts tips Material | AgSnO ₂ |
| Arcing Contacts tips Material | AgW |
| Electric Diagram HC | 42870233B |
| Electric Diagram PM | 42870289B |

| | |
|---|--------------|
| Drawing IR6030FC09M/18M & IR6040FC09M/18M | 42870405C |
| Drawing IR6050FC09M/18M | 42870683C |
| Drawing IR6030FP09M/18M & IR6040FP09M/18M | 42870678C |
| Drawing IR6050FP09M/18M | 42870684C |
| Drawing IR6030FC36M & IR6040FC36M | 42870360C F2 |
| Drawing IR6030FP36M & IR6040FP36M | 42870682C |



MICROELETTRICA

| Type | | | | | |
|---------|------------------|-----------------------|-----------------------|-----------------------|--|
| Voltage | Holding System | Thermal Current | | | |
| | | 3150 A | 4000 A | 5000 A | |
| 900 V | Holding Coil | IR 6030 FC 09M | IR 6040 FC 09M | IR 6050 FC 09M | |
| | Permanent Magnet | IR 6030 FP 09M | IR 6040 FP 09M | IR 6050 FP 09M | |
| 1800 V | Holding Coil | IR 6030 FC 18M | IR 6040 FC 18M | IR 6050 FC 18M | |
| | Permanent Magnet | IR 6030 FP 18M | IR 6040 FP 18M | IR 6050 FP 18M | |
| 3600 V | Holding Coil | IR 6030 FC 36M | IR 6040 FC 36M | - | |
| | Permanent Magnet | IR 6030 FP 36M | IR 6040 FP 36M | - | |

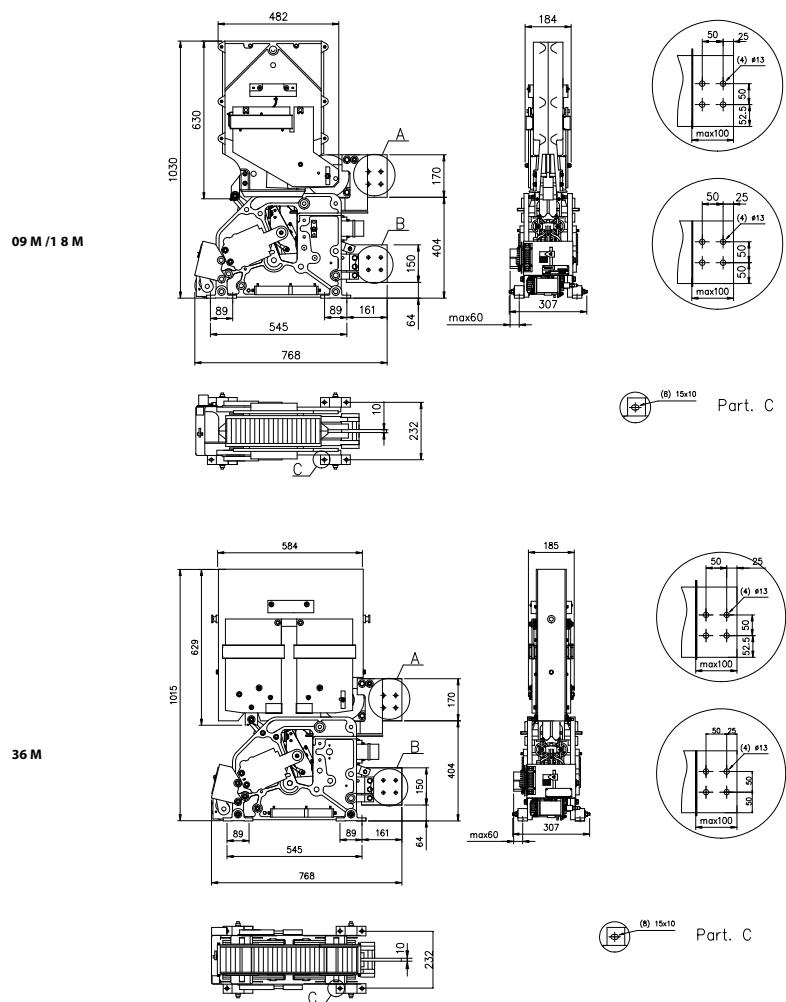
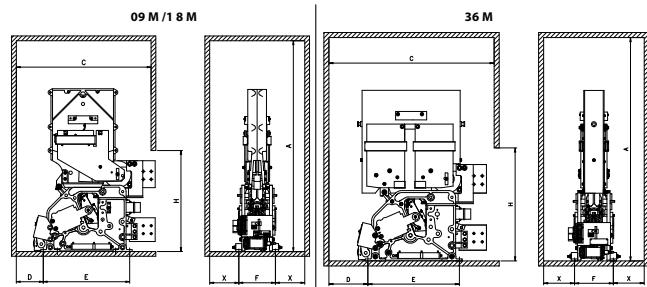
Description

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, and IEC 60947.

| Insulation 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}] @ OV3/PD3 | 2300 | 2300 | 3600 |
| Electrical Characteristics | 09M | 18M | 36M |
| Conventional Free Air Thermal Current [A] at 40°C ² | 3150 / 4000 / 5000 ¹ | 3150 / 4000 / 5000 ¹ | 3150 / 4000 ¹ |
| Occasional Overloads [A] for 120' | 3800 / 4800 / 6000 | 3800 / 4800 / 6000 | 3800 / 4800 |
| Occasional Overloads [A] for 30' | 4600 / 5800 / 7250 | 4600 / 5800 / 7250 | 4600 / 5800 |
| Occasional Overloads [A] for 7' | 6300 / 8000 / 9000 | 6300 / 8000 / 9000 | 6300 / 8000 |
| Occasional Overloads [A] for 40" | 12000 / 15000 / 16000 | 12000 / 15000 / 16000 | 12000 / 15000 |
| Making and Breaking Capacity [kA/ms] | | | |
| Rated Short Circuit | 125 / 100 | 100 / 63 | 70 / 63 |
| Duty F: Maximum Fault | 125 / 0 (peak 180KA) | 100 / 0 (peak 150KA) | 50 / 0 (peak 100KA) |
| Duty E: Maximum Energy | 62.5 / 50 | 50 / 31.5 | 35 / 31.5 |
| Duty D: Distant Fault | 10 / 100 | 10 / 63 | 10 / 63 |
| Rated Duty Cycle | 0 - 15s - CO - 15s - CO - 60s - CO | 0 - 15s - CO - 15s - CO - 60s - CO | 0 - 15s - CO - 15s - CO - 60s - CO |
| Peak arc voltage [U _{arc}] | up to 4 x U_n | up to 4 x U_n | up to 4 x U_n |
| Standard Bidirectional direct acting trip device [kA] ³ | | | |
| Setting Range A1 | 1 ÷ 1.6 | 1 ÷ 1.6 | 1 ÷ 1.6 |
| Setting Range A2 | 1.6 ÷ 2.6 | 1.6 ÷ 2.6 | 1.6 ÷ 2.6 |
| Setting Range A3 | 2.5 ÷ 4 | 2.5 ÷ 4 | 2.5 ÷ 4 |
| Setting Range A4 | 4 ÷ 6.4 | 4 ÷ 6.4 | 4 ÷ 6.4 |
| Setting Range A5 | 5.8 ÷ 9.3 | 5.8 ÷ 9.3 | - |
| Setting Range A6 | 8 ÷ 13 | 8 ÷ 13 | - |
| Setting Range B7 | 9.4 ÷ 15 | 9.4 ÷ 15 | - |
| Setting Range C8 | 12.5 ÷ 20 | - | - |
| Blow Out Circuit Type | Coil | Coil | Coil |

| Mechanical Characteristics | |
|---|--|
| Mechanical Endurance (cycles) | 8x25000 |
| Electrical durability [I_{Ne} @ U_{Ne}] | 4x200 |
| Weight [kg] 09M and 18M / 36M | 162 / 210 |
| Control Circuit | |
| Control Voltage Range | $0.8U_c \div 1.1U_c$ |
| 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] | 250 x 1.5 |
| Holding Coil version | |
| Nominal holding power @ 20°C [W] | 50 |
| Nominal opening power @ 20°C [W] | 0 |
| Controlled opening time: de-energize holding coil [ms] | < 50 |
| Controlled opening time: opening coil (optional) [ms] | < 20 |
| Controlled opening time: FOD (optional) [ms] ⁴ | 4 ÷ 6 |
| Permanent Magnet version | |
| Nominal holding power @ 20°C [W] | 0 |
| Nominal opening power and time @ 20°C [W x s] | 500 x 0.02 |
| Controlled opening time: opening coil [ms] | < 20 |
| Auxiliary Circuit | |
| Type | Reed Contacts (Vacuum Technology) |
| Voltage [V _{dc}] | 24 / 36 / 48 / 72 / 110 ¹ |
| Rated Current [A] | 5 |
| Maximum Breaking Power with Inductive Load $\tau=2ms$ [W] | 120 |
| Maximum Breaking Current with Inductive Load $\tau=2ms$ [A] | 3 |
| Maximum Breaking Voltage with Inductive Load $\tau=2ms$ [V] | 250 |
| Minimum let-through Current at 24Vdc [mA] | 5 |
| Electrical Connections | Fast-on 2.5 x 0.8mm or customized LV Connection ¹ |
| Auxiliary Circuit | |
| Type | Sliding Contact |
| Voltage [V _{dc}] | 24 / 36 / 48 / 72 / 110/220 ¹ |
| Rated Current [A] | 10 |
| Maximum Breaking Power with Inductive Load $\tau=2ms$ [W] | 120 |
| Maximum Breaking Current with Inductive Load $\tau=2ms$ [A] | 3 |
| Maximum Breaking Voltage with Inductive Load $\tau=2ms$ [V] | 250 |
| Minimum let-through Current at 24Vdc [mA] | 20 |
| Electrical Connections | Fast-on 2.5 x 0.8mm or customized LV Connection ¹ |
| Environmental Conditions | |
| Stock Temperature Range | -50°C ÷ +85°C |
| Operational Temperature Range | -30°C ÷ +70°C |
| Pollution Degree - Overvoltage Category (EN 50124-1) | PD3 - OV3 |
| Clearance in air [mm] | 32 |
| Creepage distance [mm] | 50.4 |
| Comparative Tracking Index (CTI) | >600 |
| Max Altitude without Performance Derating [m] | 2000 |
| Humidity ⁵ | 10 ÷ 95% RH |

| Minimum clearances [mm] from ⁶ : | | | | | | | |
|---|----------------|------|-----|-----|-----|-----|-----|
| Rated Operational Voltage [Vdc] | A ⁷ | C | D | E | F | H | X |
| 900 | Metal Parts | 1330 | 850 | 170 | | | 184 |
| | Plastic Parts | 1230 | 800 | 120 | | | 134 |
| 1800 | Metal Parts | 1330 | 850 | 170 | 545 | 232 | 184 |
| | Plastic Parts | 1230 | 800 | 120 | | 673 | 134 |
| 3600 | Metal Parts | 1330 | 984 | 232 | | | 184 |
| | Plastic Parts | 1230 | 934 | 182 | | | 134 |



¹ To be specified in order phase

² Device cabled according IEC 60947

³ Tripping point reached up with di/dt=200A/s.

Other setting range are available on request

⁴ For optional fast opening device (FOD) information please contact Microelettrica Sales Department, FOD option is available with Uc equal to 24/110/220 Vdc

⁵ According to EN 50125-1

⁶ Reduced distances should be approved by Microelettrica

⁷ These quotes are referred to a 50% surface opening grid

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

Microelettrica Scientifica S.p.A.

20090 Buccinasco (MI) , Via Lucania 2, Italy

Tel.: +39 02 575731

E-mail: info@microelettrica.com

www.microelettrica.com



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