

CAPACITOR DUTY CONTACTORS

(5 to 60 KVAR)



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A capacitor can function as a short-circuit element during switch-on. The magnitude of capacitor inrush or charging current depends upon AC voltage at the time of switch-on, impedance of the feeder cables and supply transformers. When switching individual capacitor bank, charging current can reach a peak value up to 30 times the rated capacitor current and in case of multistage capacitors it can reach up to 180 times of the rated capacitor current (for 1 to 2 ms).

Conventional power contactor will simply allow the inrush current to flow through, as a result both contactors and capacitors will be heavily stressed. Such high inrush current is undesirable. Therefore to limit this peak current within contactor making capacity, capacitor duty contactors are fitted with a block of three early make aux. contacts in series with 6 damping resistors (two per phase).

After successful dampening of inrush current, the main contacts close & the aux contacts get automatically disconnected from the circuit through a de-latching mechanism.

Benefit

If a conventional power contactor is used for a capacitor switching application, the size of contactor will be more which will in turn increase the system cost. On the other hand, size of a special capacitor duty contactor will be less and so the total system cost for the same application. Hence, capacitor duty contactors are best suited for capacitor switching applications which not only save cost but also improve the life of the equipment.

Technical Data

| Catalogue Reference | CCD.05.11.* | CCD.10.11.* | CCD.15.11.* | CCD.20.11.* | CCD.25.11.* |
|--|---|-------------------|-------------|-------------|-------------|
| Conformance to Standards | IS/IEC60947-4-1 | | | | |
| Pollution Degree | III | | | | |
| Ambient Temperature | Service | -5 to +55 Deg. C | | | |
| | Storage | -25 to +70 Deg. C | | | |
| Power | | | | | |
| Rated Operational Voltage - U _e | 415V | 415V | 415V | 415V | 415V |
| Rated Insulation Voltage - U _i | 690V | 690V | 690V | 690V | 690V |
| Rated Impulse withstand Voltage - U _{imp} | 6kV | 6kV | 6kV | 6kV | 6kV |
| Operational Power Utilization at ≤ 55°C at 50Hz | 230/240 (KVAR) | 3 | 5 | 10 | 15 |
| | 380/400 (KVAR) | 5 | 10 | 15 | 20 |
| | 415 (KVAR) | 5 | 10 | 15 | 20 |
| Max Ops Per Hour | 240 | 240 | 240 | 240 | 240 |
| Electrical Endurance at Nominal Load (Opns) at 415V | 100000 | 100000 | 100000 | 100000 | 100000 |
| Short Circuit Protection | 20A | 32A | 40A | 63A | 63A |
| Mechanical | | | | | |
| Weight | 0.54 kg | 0.565kg | 0.565kg | 1.340kg | 0.565kg |
| Tightening Torque on Cable End | 1.2 Nm | 1.2 Nm | 1.7Nm | 1.7Nm | 5.7Nm |
| Cable Termination | No of Conductors | 1 | 1 | 1 | 1 |
| | Flexible Cable with lug (mm ²) | 0.75 to 4 | 0.75 to 4 | 1 to 10 | 1 to 10 |
| | Solid Cable (mm ²) | 0.75 to 4 | 0.75 to 4 | 1 to 10 | 1 to 10 |
| Control | Coil Consumption at 50HZ | | | | |
| | Inrush VA | 70 | 70 | 92 | 92 |
| | Sealed VA | 6.4 | 6.4 | 8 | 8 |
| | Aux Contacts as a standard | 1NO+1NC | 1NO+1NC | 1NO+1NC | 1NO+1NC |

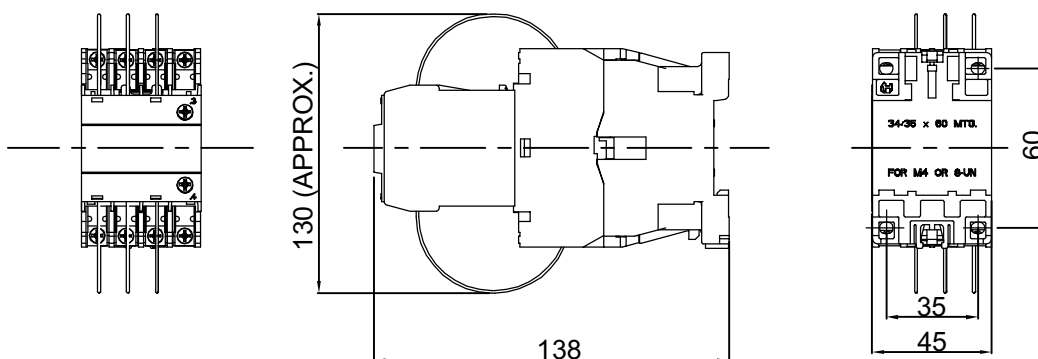
| Catalogue Reference | CCD.30.11.* | CCD.40.11.* | CCD.50.21.* | CCD.60.21.* |
|--|---------------------------------|-------------------|-------------|-------------|
| Conformance to Standards | IS/IEC60947-4-1 | | | |
| Pollution Degree | III | | | |
| Ambient Temperature | Service | -5 to +55 Deg. C | | |
| | Storage | -25 to +70 Deg. C | | |
| Power | | | | |
| Rated Operational Voltage - Ue | 415V | 415V | 415V | 415V |
| Rated Insulation Voltage - Ui | 690V | 690V | 1000V | 1000V |
| Rated Impulse withstand Voltage - Uimp | 6kV | 6kV | 8kV | 8kV |
| Operational Power Utilization at <= 55°C at 50Hz | 230/240 (KVAR) | 20 | 25 | 30 |
| | 380/400 (KVAR) | 30 | 40 | 50 |
| | 415 (KVAR) | 30 | 40 | 50 |
| Max Ops Per Hour | 240 | 240 | 240 | 240 |
| Electrical Endurance at Nominal Load (Opns) at 415V | 100000 | 100000 | 100000 | 100000 |
| Short Circuit Protection | 80A | 125A | 125A | 160A |
| Mechanical | | | | |
| Weight | 0.565kg | 1.340kg | 0.565kg | 1.340kg |
| Tightening Torque on Cable End | 5.7Nm | 5.7Nm | 8Nm | 8Nm |
| Cable Termination | No of Conductors | 1 | 1 | 1 |
| | Flexible Cable with lug (mm2) | 2.5 to 25 | 2.5 to 25 | 4 to 50 |
| | Solid Cable (mm2) | 2.5 to 25 | 2.5 to 25 | 4 to 50 |
| Control | Coil Consumption at 50HZ | | | |
| | Inrush VA | 230 | 230 | 250 |
| | Sealed VA | 28 | 28 | 19 |
| | Aux Contacts as a standard | 1NO+1NC | 1NO+1NC | 2NO+1NC |

*For coil voltage codes refer below table

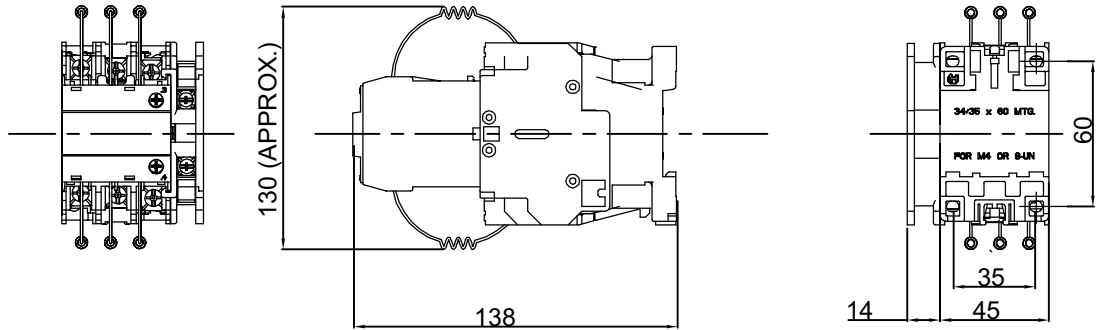
| * Coil Voltage | 24V | 48V | 110V | 220V | 240V | 380V | 415V | 440V | 550V |
|----------------|-----|-----|------|------|------|------|------|------|------|
| | U | W | A | B | K | L | M | C | D |

Dimensional details

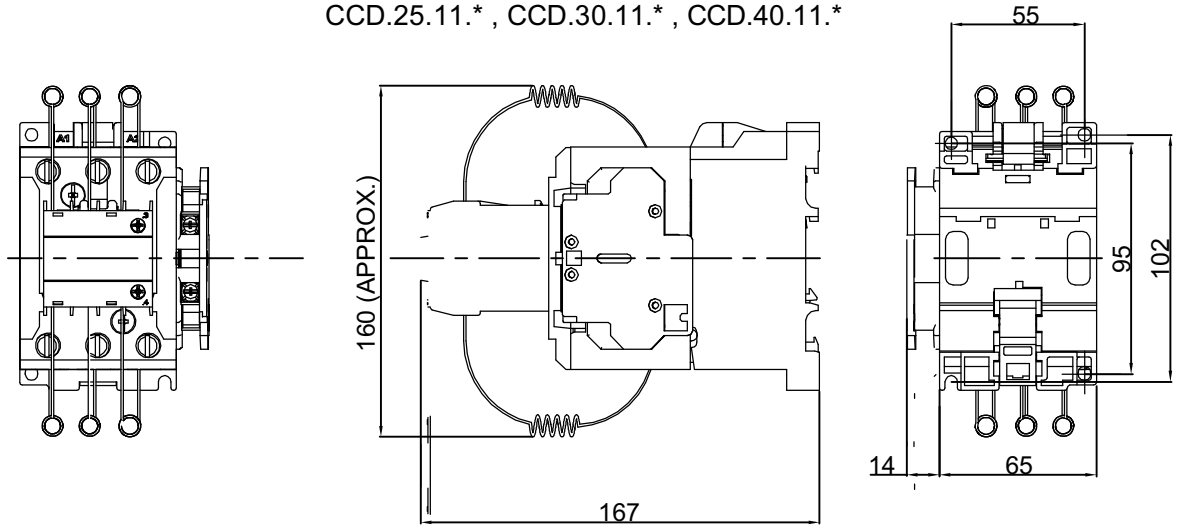
CCD.05.11.*, CCD.10.11.*



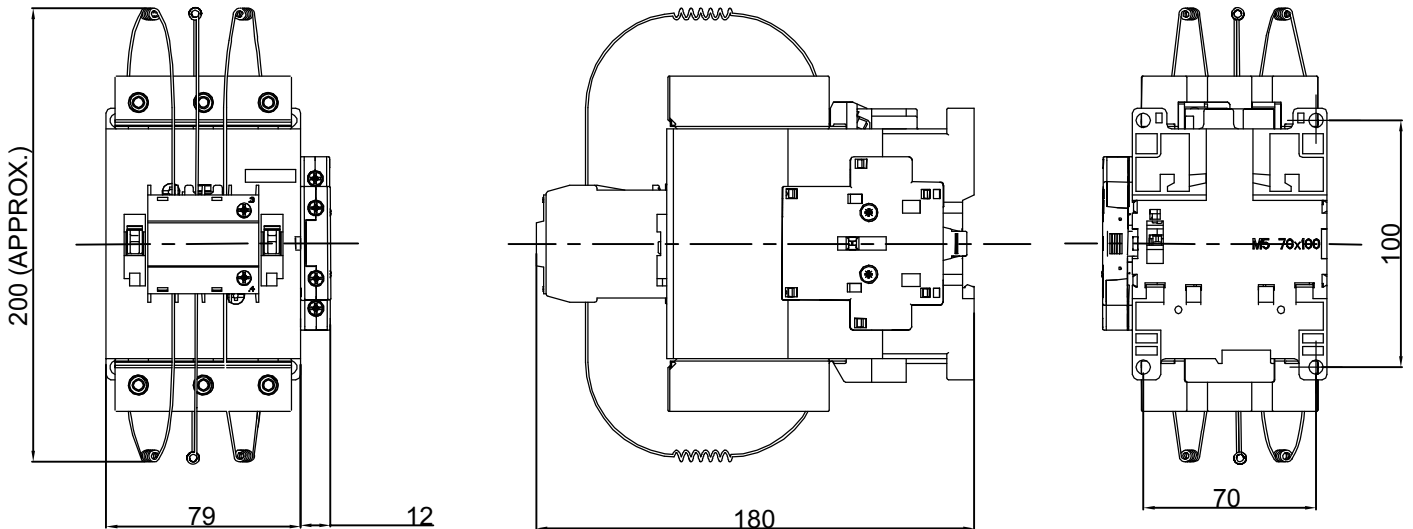
CCD.15.11.* , CCD.20.11.*



CCD.25.11.* , CCD.30.11.* , CCD.40.11.*



CCD.50.21.* , CCD.60.21.*



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