

Data sheet

# Circuit Breakers, Type CTI 25M, CTI 45MB, CTI 100



Circuit breakers for short circuit and overload protection of motor applications cover together with the circuit breaker CTI 100 the current range 0.1 - 90 A (AC-3 rating). The product range is split in three product sizes. The smallest size is CTI 25M. It consists of 14 code numbers and covers the current range 0.1- 32 A. The bigger size is called CTI 45MB. It consists of one code number and covers the current range from 32 - 45 A. The biggest size is CTI 100 consists of two code numbers and covers the current range from 40 - 90 A.

The program is very flexible and includes add-on accessories such as auxiliary contacts, alarm contacts, voltage and under voltage trips, connection terminals and bus bars.

**Features**

- Overload protection and short circuit protection of motor installations
- Test function for thermal trip
- Manual reset function
- Indication for thermal trip
- Indication for magnetic trip (short circuiting)
- Single phase protection (Differential trip)
- Temperature compensated (-20°C - +60°C)
- Tripping class 10

## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### Approvals

| Product type | Approval institute |        |     |                             | UK                 | Germany        | France |
|--------------|--------------------|--------|-----|-----------------------------|--------------------|----------------|--------|
|              | EN 60947           | Canada | USA | Lloyds Register of Shipping | Germanischer Lloyd | Bureau Veritas |        |
| CTI 25M      | ●                  | ●      | ●   | □                           | □                  | □              |        |
| CTI 45MB     | ●                  | ●      | ●   | □                           | □                  | □              |        |
| CBA-         | ●                  | ●      | ●   | □                           | □                  | □              |        |
| CBA S-       | ●                  | ●      | ●   | □                           | □                  | □              |        |
| CBT-         | ●                  | ●      | ●   | □                           | □                  | □              |        |
| CBT S-       | ●                  | ●      | ●   | □                           | □                  | □              |        |
| VTU-         | ●                  | ●      | ●   | □                           | □                  | □              |        |
| VTU 2EM-     | ●                  | ●      | ●   | □                           | □                  | □              |        |
| VT-          | ●                  | ●      | ●   | □                           | □                  | □              |        |
| BLK          | ●                  | ●      | ●   | □                           | □                  | □              |        |
| RLK          | ●                  | ●      | ●   | □                           | □                  | □              |        |
| BDH          | ●                  | ●      | ●   | □                           | □                  | □              |        |
| RDH          | ●                  | ●      | ●   | □                           | □                  | □              |        |
| BMP          | ●                  | ●      | ●   | □                           | □                  | □              |        |
| RMP          | ●                  | ●      | ●   | □                           | □                  | □              |        |
| BBT-         | ●                  | ●      | ●   | □                           | □                  | □              |        |
| BBC-         | ●                  | ●      | ●   | □                           | □                  | □              |        |
| CTI 100      | ●                  | ●      | ●   | ●                           | ●                  | ●              |        |
| CBI 100-     | ●                  | ●      | ●   | ●                           | ●                  | ●              |        |
| CBI 100 UI-  | ●                  | ●      | ●   | ●                           | ●                  | ●              |        |
| CBI 100 UA-  | ●                  | ●      | ●   | ●                           | ●                  | ●              |        |
| CBI 100 AA-  | ●                  | ●      | ●   | ●                           | ●                  | ●              |        |
| CTC          | ●                  | ●      | ●   | □                           | □                  | □              |        |

- Approved
- Approvals applied for

### Ordering

#### Circuit Breakers / Manual Motor Starters CTI 25M, CTI 45MB, CTI 100

| Type      | AC-3 Load<br>380 - 415 V<br>[kW] | Range<br>Motor Starter<br>[A] | Electromagnetic<br>Trip current<br>[A] | Code number     |
|-----------|----------------------------------|-------------------------------|--|-----------------|
| CTI 25M   | 0.02                             | 0.1 - 0.16                    | 2.1                                    | <b>047B3140</b> |
|           | 0.06                             | 0.16 - 0.25                   | 3.3                                    | <b>047B3141</b> |
|           | 0.09                             | 0.25 - 0.40                   | 5.2                                    | <b>047B3142</b> |
|           | 0.18                             | 0.4 - 0.63                    | 8.2                                    | <b>047B3143</b> |
|           | 0.25                             | 0.63 - 1.0                    | 13                                     | <b>047B3144</b> |
|           | 0.55                             | 1.0 - 1.6                     | 21                                     | <b>047B3145</b> |
|           | 0.75                             | 1.6 - 2.5                     | 33                                     | <b>047B3146</b> |
|           | 1.5                              | 2.5 - 4.0                     | 52                                     | <b>047B3147</b> |
|           | 2.2                              | 4.0 - 6.3                     | 82                                     | <b>047B3148</b> |
|           | 4.0                              | 6.3-10                        | 130                                    | <b>047B3149</b> |
|           | 7.5                              | 10 - 16                       | 208                                    | <b>047B3150</b> |
|           | 10                               | 14.5 - 20                     | 260                                    | <b>047B3151</b> |
|           | 11                               | 18 - 25                       | 325                                    | <b>047B3152</b> |
| 13        | 24 - 29                          | 406                           | <b>047B3103</b>                        |                 |
| 15        | 27 - 32                          | 448                           | <b>047B3102</b>                        |                 |
| CTI 45 MB | 22                               | 32 - 45                       | 585                                    | <b>047B3165</b> |
| CTI 100   | 31.5                             | 40 - 63                       | 882                                    | <b>047B3014</b> |
|           | 45                               | 63 - 90                       | 1260                                   | <b>047B3015</b> |

#### Note!

For motors with full load currents higher or equal with 19 A, CTI 25M 047B3152 (18 - 25 A) must be selected.

## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### Ordering

CBA -



CBA S-  
CBT S-



VTU



Anti tamper  
shield



BLK



BDH  
RDH



Door handle  
extension



BBT 25



BBT 45

BBC 25



### Auxiliary contacts and Alarm contacts to circuit breakers CTI 25M, CTI 45MB

| Type      | Description                         |  | Mounting              | Code no.        |
|-----------|-------------------------------------|--|-----------------------|-----------------|
| CBA-10    | Auxiliary contact                   | 1 NC (11-12)   | Front <sup>1)</sup>   | <b>047B3198</b> |
| CBA-11    | Auxiliary contact                   | 1 NO+1 NC (13-14, 21-22)                                 | Front <sup>1)</sup>   | <b>047B3200</b> |
| CBA-20    | Auxiliary contact                   | 2 NO (13-14, 23-24)                                      | Front <sup>1)</sup>   | <b>047B3201</b> |
| CBA S-11  | Auxiliary contact                   | 1 NO+1 NC (33-34, 41-42)                                 | Side <sup>1) 3)</sup> | <b>047B3203</b> |
| CBT S-TM2 | Trip alarm + Magnetic alarm contact | Trip alarm: Make, 55-56,<br>Magnetic alarm: Break, 65-66 | Side <sup>2) 4)</sup> | <b>047B3211</b> |

<sup>1)</sup> Max. one per Circuit breaker

<sup>2)</sup> Can also be mounted together with CBA-S

<sup>3)</sup> Can also be mounted onto an alarm contact CBT S-

<sup>4)</sup> Always direct onto the circuit breaker

### Under voltage and voltage trips to circuit breakers CTI 25M, CTI 45MB

| Type | Remarks   | Code no.        |
|------|---|-----------------|
| VTU  | Under voltage trip, 24 V/50 Hz-28 V/60 Hz, D1-D2            | <b>047B3214</b> |
| VTU  | Under voltage trip, 220-230 V/50 Hz, D1-D2                  | <b>047B3217</b> |
| VTU  | Under voltage trip, 380-400 V/50 Hz, 440-460 V/60 Hz, D1-D2 | <b>047B3220</b> |

### Accessories for circuit breakers CTI 25M, CTI 45MB

| Type | Remarks   | Code no.        |
|------|---|-----------------|
| BLK  | Black lockable rotary handle                            | <b>047B3243</b> |
| BDH  | Black door handle for mounting in panel doors IP66      | <b>047B3249</b> |
| RDH  | Red/yellow door handle for mounting in panel doors IP66 | <b>047B3250</b> |
|      | Door handle extension rod for CBI 100-BDH               | <b>047B3136</b> |

### Connection terminal blocks and bus bars for circuit breakers CTI 25M, CTI 45MB

| Type        | Remarks                               | Spacing | Number of connections | Code No.        |
|-------------|---------------------------------------|---------|-----------------------|-----------------|
| BBT 52      | Connection terminal block for CTI 25M |         |                       | <b>047B3259</b> |
| BBC 25 45-2 | Bus bar for CTI 25M                   | 45 mm   | 2                     | <b>047B3261</b> |
| BBC 25 45-3 | Bus bar for CTI 25M                   | 45 mm   | 3                     | <b>047B3262</b> |
| BBC 25 45-5 | Bus bar for CTI 25M                   | 45 mm   | 4                     | <b>047B3263</b> |
| BBC 25 54-2 | Bus bar for CTI 25M                   | 54 mm   | 2                     | <b>047B3265</b> |
| BBC 25 54-3 | Bus bar for CTI 25M                   | 54 mm   | 3                     | <b>047B3266</b> |
| BBC 25 54-4 | Bus bar for CTI 25M                   | 54 mm   | 4                     | <b>047B3267</b> |
| BBC 25 54-5 | Bus bar for CTI 25M                   | 54 mm   | 5                     | <b>047B3268</b> |

## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### Ordering

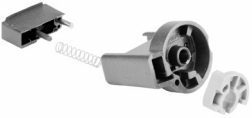
CBI 100-  
CBI 100 UI-



CBI 100 UA-



CBI 100- LK



### Accessories for circuit breaker CTI 100

| Type       | Remarks   | Code no.        |
|------------|---|-----------------|
| CBI 100-20 | Auxiliary contact, 2 NO (13-14, 23-24), for front mounting      | <b>047B3110</b> |
| CBI 100-11 | Auxiliary contact, 1 NO+1 NC (13-14, 21-22), for front mounting | <b>047B3112</b> |
|            | Door handle extension rod for CBI 100-BDH                       | <b>047B3136</b> |

## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100



Enclosures for the circuit breaker CTI 25M is made of deform-resistant grey ABS thermoplast.

The enclosures are available with black rotary handle on a grey background or with red rotary handle on a yellow background.

Circuit breaker type CTI 25M for overload protection of electric motors from 0.1 - 25 A full load current can be mounted into the enclosure.

### Features

- Status indication ON-OFF-TRIP
- For maintenance purposes locking facility up to 3 padlocks
- Sealed cover
- High protection degree IP65
- Cable entries top and bottom M20/25
- Mounted with DIN-rail
- Mounted with earth terminal
- Possible installation of auxiliary and trip contacts
- Space for under voltage and voltage trips

### Used as:

- Manual motor starter
- Mains isolator
- Maintenance switch
- Emergency switch together with under voltage trip

### Used on:

- Small workshops for drilling machines
- Concrete mixer
- Air handling units
- Water booster systems
- Fan systems
- Transport belt

### Ordering

#### Enclosures for CTI 25M

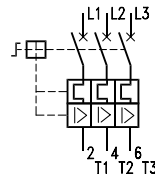
| Type | Application                      | Rotary handle | Cable entries | Code no.        |
|------|----------------------------------|---------------|---------------|-----------------|
| BMG  | Motor starter / Main switch      | Black/grey    | 4 M20/25      | <b>047B3284</b> |
| BMY  | Motor starter / Emergency switch | Red/grey      | 4 M20/25      | <b>047B3285</b> |

# Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

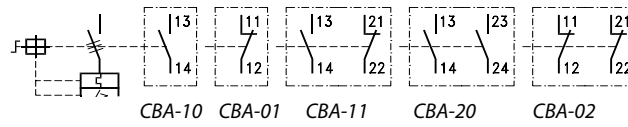
## Contact symbols for CTI and accessories

Circuit breakers

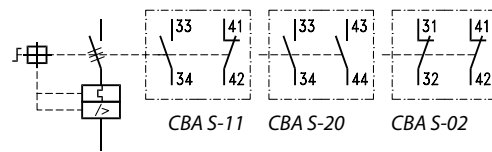
CTI 25M, CTI 45MB



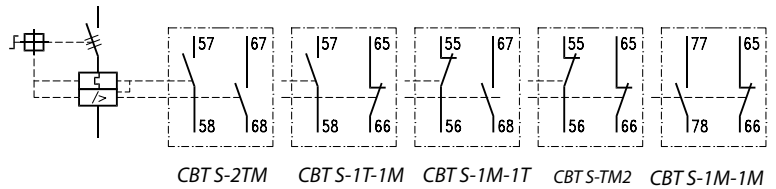
Auxiliary contacts for front mounting



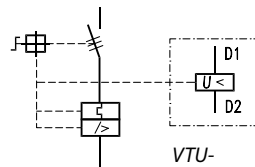
Auxiliary contacts for side mounting



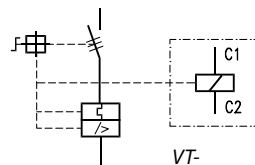
Alarm contacts for side mounting



Under voltage trip



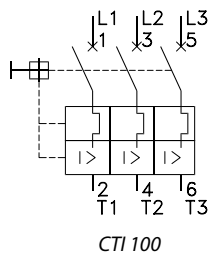
Voltage trip



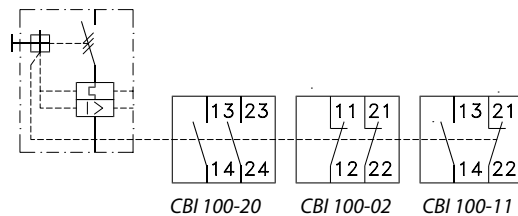
## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### Contact symbols for CTI 100 and accessories

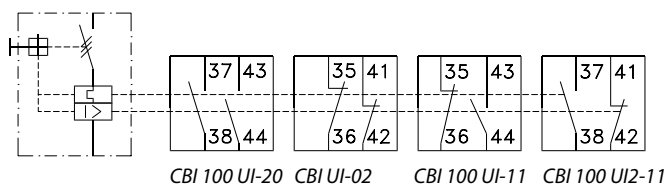
*Circuit breaker*



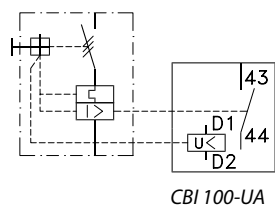
*Auxiliary contacts*



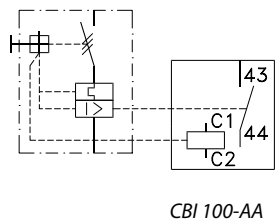
*Alarm contacts*



*Under voltage trip*



*Voltage trip*

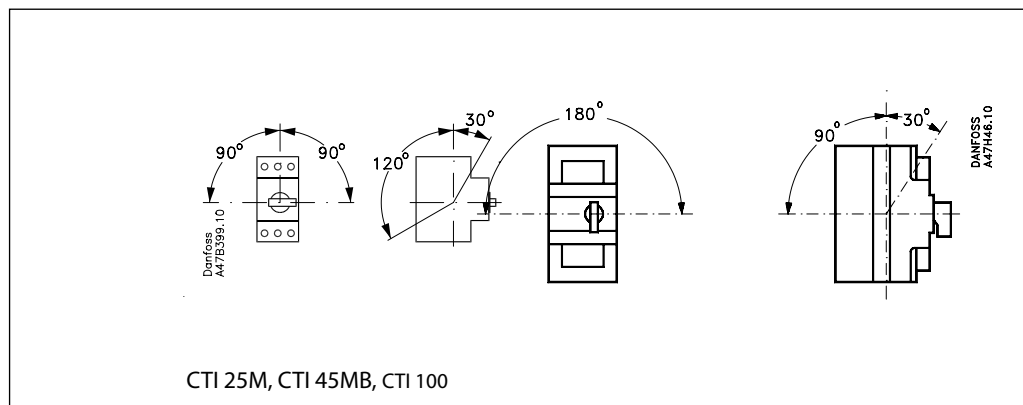


## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### General specifications

| Parameters   | CTI 25M, CTI 45MB  | CTI 100                            |
|--|--|------------------------------------|
| Isolation voltage<br>IEC, SEV, VDE 0660<br>UL, CSA                       | 690 V<br>600 V   |                                    |
| Impulse voltage<br>U <sub>imp</sub> /pollution degree                    | 6 kV/3   | 8 kV/3                             |
| Rated frequency range  | 50-60 Hz   | 40-60 Hz                           |
| Ambient temperature:<br>Storage<br>Operation<br>Temperature compensation | -40°C - +80°C<br>-25°C - +60°C<br>-20°C - +60°C              |                                    |
| Utilization category   | As circuit breaker IEC 947-2<br>As motor starter IEC 947-4-1 |                                    |
| Overload protection  | Motors   | Motors                             |
| Trip class   | 10   | 10                                 |
| Magnetic trip  | 13 × (max. value of setting range)                           | 14 × (max. value of setting range) |
| Phase failure protection   | Yes  | Yes                                |
| Mechanical operations  | 100000   | 30000                              |
| Electrical operations  | 30000  | 10000<br>5000 (63-90)              |
| Switching frequency  | Max 25 operations/hour                                       | Max 20 operations/hour             |
| Resistance to climate change   | according to IEC 68-2  |                                    |
| Site altitude  | 2000 m N.N   |                                    |
| Protection class   | IP20   |                                    |
| Resistance to vibration  | IEC 68-2   |                                    |
| Resistance to shock  | 30g, 11 ms   | 30 g, 11 ms                        |
| Life span  | 0.1 - 25 A   | 40 - 90 A                          |
| Total power loss   | 6 - 8 W  | 33 W                               |

### Mounting direction





## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### Max. motor load

Circuit breaker for overload and short circuit protection of motor applications CTI 25M, CTI 45MB, CTI 100

| Type     | Setting<br>[A] | Motor operating voltage – Rated output in [kW] |      |             |      |       |      |       |      |
|----------|----------------|--|------|-------------|------|-------|------|-------|------|
|          |                | 220 - 240 V                                    |      | 380 - 415 V |      | 500 V |      | 690 V |      |
|          |                | AC-2   | AC-3 | AC-2        | AC-3 | AC-2  | AC-3 | AC-2  | AC-3 |
| CTI 25M  | 0.1 - 0.16     | -  | -    | -           | 0.02 | -     | -    | -     | -    |
|          | 0.16 - 0.25    | -  | -    | -           | 0.06 | -     | -    | -     | -    |
|          | 0.25 - 0.4     | -  | -    | -           | 0.09 | -     | -    | -     | -    |
|          | 0.40 - 0.63    | 0.06   | 0.09 | 0.12        | 0.18 | -     | 0.18 | -     | 0.25 |
|          | 0.63 - 1.0     | -  | 0.12 | -           | 0.25 | 0.25  | 0.37 | 0.37  | 0.55 |
|          | 1.0 - 1.6      | 0.18   | 0.25 | 0.37        | 0.55 | 0.55  | 0.75 | 0.75  | 1.1  |
|          | 1.6 - 2.5      | -  | 0.37 | -           | 0.75 | -     | 1.1  | -     | 1.8  |
|          | 2.5 - 4.0      | 0.55   | 0.75 | 1.1         | 1.5  | 1.5   | 2.2  | 2.2   | 3    |
|          | 4.0 - 6.3      | 1.1  | 1.5  | -           | 2.2  | 2.5   | 3    | -     | 4    |
|          | 6.3 - 10       | -  | 2.2  | 3           | 4    | 4     | 6.3  | 5.5   | 7.5  |
|          | 10 - 16        | 3  | 4    | 5.5         | 7.5  | 7.5   | 10   | 11    | 13   |
|          | 14.5 - 20      | 4  | 5.5  | 7.5         | 10   | -     | 11   | 15    | 17   |
|          | 18 - 25        | -  | 5.5  | -           | 11   | -     | 15   | 18.5  | 22   |
|          | 24 - 29        | -  | 7.5  | -           | 13   | -     | 18.5 | -     | 25   |
| 27 - 32  | -              | 7.5  | -    | 15          | -    | 20    | -    | 25    |      |
| CTI 45MB | 32 - 45        | 11   | 13   | 18.5        | 22   | 22    | 30   | 30    | 40   |
| CTI 100  | 40 - 63        | 12.5   | 20   | 25          | 31.5 | 30    | 40   | 37    | 55   |
|          | 63 - 90        | 22   | 25   | 37          | 45   | 45    | 55   | 63    | 75   |

### Accessories for circuit breakers CTI 25M

Auxiliary and trip contacts CBA-, CBA S-, CBT S-

| Type   | Description                           | lth   |       | AC-15 |       |             |             |       | DC-13 |       |       |       |
|--------|---------------------------------------|-------|-------|-------|-------|-------------|-------------|-------|-------|-------|-------|-------|
|        |                                       | 40 °C | 60 °C | 24 V  | 120 V | 220 - 240 V | 380 - 415 V | 690 V | 24 V  | 120 V | 240 V | 415 V |
|        |                                       | [A]   | [A]   | [A]   | [A]   | [A]         | [A]         | [A]   | [A]   | [A]   | [A]   | [A]   |
| CBA-   | Auxiliary contacts for front mounting | 5     | 4     | 4     | 3     | 1.5         | -           | -     | 2     | 0.5   | 0.25  | -     |
| CBA S- | Auxiliary contacts for side mounting  | 10    | 6     | 6     | 5     | 3           | 2           | 0.7   | 2     | 0.5   | 0.25  | 0.15  |
| CBT S- | Trip contacts for side mounting       | 10    | 6     | 6     | 5     | 3           | 2           | 0.7   | 2     | 0.5   | 0.25  | 0.15  |

### Bus bar terminal and Bus bar connection

| Type   | Description                     | Max. load<br>lth at 60 °C<br>[A] |
|--------|---------------------------------|----------------------------------|
| BBT 25 | Bus bar terminal for CTI 25M    | 63                               |
| BBC 25 | Bus bar connection for CTI 25M  | 63                               |
| BBT 45 | Bus bar terminal for CTI 45MB   | 120                              |
| BBC 45 | Bus bar connection for CTI 45MB | 120                              |

### Voltage and under voltage trip VT-, VTU-

| Type | Description  | Operating voltage range  | Coil consumption                                |
|------|--|--|---|
| VT-  | Voltage trip<br>21 V/50 Hz-415 V/50 Hz<br>24 V/60 Hz-480 V/60 Hz (max 300V UL)<br>Endurance 100%       | Pull-in<br>0.85-1.1xU <sub>S</sub><br>Drop-out<br>0.7-0.35x U <sub>S</sub> | Pull-in:<br>8.5 VA, 6 W<br>Hold:<br>3 VA, 1.2 W |
| VTU- | Under voltage trip<br>21 V/50 Hz-415 V/50 Hz<br>24 V/60 Hz-480 V/60 Hz (max 300V UL)<br>Endurance 100% | Pull-in<br>0.85-1.1xU <sub>S</sub><br>Drop-out<br>0.7-0.35x U <sub>S</sub> | Pull-in:<br>8.5 VA, 6 W<br>Hold:<br>3 VA, 1.2 W |

## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### Accessories for circuit breaker CTI 100

#### Auxiliary contacts and alarm contacts CBI 100-, CBI 100 UI-

| Type        | Description       | I <sub>th</sub> |       | AC-15       |             |       |       | DC-13 |      |       |       |
|-------------|-------------------|-----------------|-------|-------------|-------------|-------|-------|-------|------|-------|-------|
|             |                   | 40 °C           | 60 °C | 220 - 240 V | 380 - 415 V | 500 V | 690 V | 24 V  | 48 V | 110 V | 220 V |
|             |                   | [A]             | [A]   | [A]         | [A]         | [A]   | [A]   | [A]   | [A]  | [A]   | [A]   |
| CBI 100-    | Auxiliary contact | 10              | 6     | 3           | 2.5         | 1.5   | 0.75  | 2     | 0.6  | 0.2   | 0.1   |
| CBI 100 UI- | Alarm contact     | 10              | 6     | 3           | 2.5         | 1.5   | 0.75  | 2     | 0.6  | 0.2   | 0.1   |

#### Alarm contact in undervoltage- and voltage trip

| Type        | Description        | I <sub>th</sub> |      | AC-14 |             |             |       | DC-13 |      |      |       |
|-------------|--------------------|-----------------|------|-------|-------------|-------------|-------|-------|------|------|-------|
|             |                    | 60 °C           | 24 V | 110 V | 220 - 240 V | 380 - 415 V | 500 V | 24 V  | 48 V | 60 V | 110 V |
|             |                    | [A]             | [A]  | [A]   | [A]         | [A]         | [A]   | [A]   | [A]  | [A]  | [A]   |
| CBI 100- AA | Voltage trip       | 2               | 1.5  | 1.5   | 1           | 1           | 0.75  | 1.5   | 0.5  | 0.4  | 0.2   |
| CBI 100- UA | Under voltage trip | 2               | 1.5  | 1.5   | 1           | 1           | 0.75  | 1.5   | 0.5  | 0.4  | 0.2   |

#### Voltage- and under voltage trip CBI 100-AA and CBI 100-UA

| Type       | Remarks  | Voltage range   | Coil consumption             |
|------------|--|---|------------------------------|
| CBI 100-AA | Voltage trip<br>21 V/50 Hz-415 V/50 Hz Switch-in voltage<br>24 V/60 Hz-480 V/60 Hz (max 300V UL)<br>Endurance 100%       | Switch-in power:<br>0.85-1.1xU <sub>s</sub><br>Drop-out voltage<br>0.7-0.35x U <sub>s</sub> 3VA, 1.2W | 8.5 VA, 6 W<br>Holding power |
| CBI 100-UA | Under voltage trip<br>21 V/50 Hz-415 V/50 Hz Switch-in voltage<br>24 V/60 Hz-480 V/60 Hz (max 300V UL)<br>Endurance 100% | Switch-in power:<br>0.85-1.1xU <sub>s</sub><br>Drop-out voltage<br>0.7-0.35x U <sub>s</sub> 3VA, 1.2W | 8.5 VA, 6 W<br>Holding power |

#### Terminals

| Type        | Comments                    | Recommended screwdriver size | Solid wire<br>[mm <sup>2</sup> ] | Stranded wire<br>[mm <sup>2</sup> ] | Stranded wire with sleeve<br>[mm <sup>2</sup> ] | Tightening torque<br>[Nm] |
|-------------|-----------------------------|------------------------------|----------------------------------|-------------------------------------|---|---------------------------|
| CTI 25M     | 1 conductor or 2 conductors | Pozi 2/ blade 3              | 1.5-6                            | 1-6                                 | 1-4   | 1-2.5                     |
| CBA-        | 1 conductor or 2 conductors | Pozi 2/ blade 3              | 0.75-2.5                         | 0.75-2.5                            | 0.5-2.5   | 1.5                       |
| CBA S-      | 1 conductor or 2 conductors | Pozi 2/ blade 3              | 0.75-2.5                         | 0.75-2.5                            | 0.5-2.5   | 1.5                       |
| CBT S-      | 1 conductor or 2 conductors | Pozi 2/ blade 3              | 0.75-2.5                         | 0.75-2.5                            | 0.5-2.5   | 1.5                       |
| VT-         | 1 conductor or 2 conductors | Pozi 2/ blade 3              | 0.75-2.5                         | 0.75-2.5                            | 0.5-2.5   | 1.5                       |
| VTU-        | 1 conductor or 2 conductors | Pozi 2/ blade 3              | 0.75-2.5                         | 0.75-2.5                            | 0.5-2.5   | 1.5                       |
| CBA-        | 1 conductor or 2 conductors | Pozi 2/ blade 3              | 0.75-2.5                         | 0.75-2.5                            | 0.5-2.5   | 1.5                       |
| BBT 25      | 1 conductor                 | Pozi 2/ blade 3              | 6-25                             | 6-25                                | 4-16  | 3                         |
| BBT 25      | 2 conductors                | Pozi 2/ blade 3              | 6-16                             | 6-16                                | 4-10  | 3                         |
| BBT 45      | 1 conductor                 | Pozi 2/ blade 4              | 10-50                            | 10-50                               | 6-35  | 3                         |
| BBT 45      | 2 conductors                | Pozi 2/ blade 4              | 10-25                            | 10-25                               | 6-16  | 3                         |
| CTI 100     | 1 conductor                 | Allen key 5                  | -                                | 4-50                                | 2.5-35  | 6-10                      |
| CBI 100-    | 2 conductors                | Pozi 2/ blade 3              | -                                | 0.75-2.5                            | 0.75-2.5  | 1-1.5                     |
| CBI 100 UI- | 2 conductors                | Pozi 2/ blade 3              | -                                | 0.75-2.5                            | 0.75-2.5  | 1-1.5                     |
| CBI 100 UA- | 2 conductors                | Pozi 2/ blade 3              | -                                | 0.75-2.5                            | 0.75-2.5  | 1-1.5                     |
| CBI 100 AA- | 2 conductors                | Pozi 2/ blade 3              | -                                | 0.75-2.5                            | 0.75-2.5  | 1-1.5                     |

## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### Short circuit protection

Short circuit coordination is the connection between the specifications of the protection devices, such as fuses, circuit breakers, MCCB and its ability to resist short circuit.

#### Short circuit coordination type 1

##### Test demand

O-t-CO

O = Breaking a short circuiting

CO = Making and breaking a short circuiting

t = Defined pause (3 min)

No damage to equipment or personal injury may occur in the event of short circuit. However, contactors and thermal overload relays are not required to remain functional after short circuit. It is typically the maximum short circuit breaking capacity  $I_{cu}$  in use when a plant is dimensioned according to coordination type 1.

#### Short circuit coordination type 2

##### Test demand

O-t-CO-t-CO

O = Breaking a short circuiting

CO = Making and breaking a short circuiting

t = Defined pause (3 min)

No damage to equipment or personal injury may occur in the event of short circuit. However, light contact welding is permissible, provided that contacts can be separated without deformation, using a screwdriver for example. Contactors and thermal overload relays must remain completely functional after short circuit.

It is typical the short circuit breaking capacity during operation  $I_{cs}$  in use when a plant is dimensioned according to coordination type 2.

| Terms   | Remarks   |
|---|---|
| Prospective short circuit current ( $I_{cc}$ )              | The prospective short circuit current is the current that flows during a bolt short circuiting without any short circuit protection device mounted  |
| Rated ultimate short circuit breaking capacity ( $I_{cu}$ ) | The ultimate short circuit breaking capacity is the maximum short circuit current specified by the manufacturer that a circuit breaker can handle under circumstances specified in IEC 947-2 and in EN 60947-2      |
| Rated service short circuit breaking capacity ( $I_{cs}$ )  | The rated service short circuit breaking capacity is the maximum short circuit current specified by the manufacturer that a circuit breaker can handle under circumstances specified in IEC 947-2 and in EN 60947-2 |
| $I_r$ -current  | The $I_r$ -current is a short circuit test current. The size of the $I_r$ -current is determined by the nominal current of the product. (See below)   |
| $I_q$ current   | $I_q$ -current is the maximum prospective short circuiting current stated by the manufacturer and often at the value 50 kA.   |
| gL fuse   | Indicates full short circuit protection at voltages 250V, 400V, 500V and 690V   |
| gL fuse   | Indicates full short circuit protection of wires.   |
| gG fuse   | Indicates full short circuit protection at general applications. (Will replace gL- and gL-fuses)  |
| T fuse  | Description of an English standard fuse.  |
| BS 88   | British Standard for smeltesikringer  |

| Contactor size             | Prospective short circuit test current |
|----------------------------|--|
| Rated current at AC-3 load | $I_r$ in [kA]                          |
| $0 < I_e < 16$             | 1                                      |
| $16 < I_e < 63$            | 3                                      |
| $63 < I_e < 125$           | 5                                      |
| $125 < I_e < 315$          | 10                                     |
| $315 < I_e < 630$          | 18                                     |
| $630 < I_e < 1000$         | 30                                     |

## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

Back-up fuses type gG, gL  
and  $I_{cc} > I_{cu}$

| Type     | Setting [A] | 220-240 V [A] | 380-415 V [A] | 440-460 V [A] | 500 V [A] | 690 V [A] |
|----------|-------------|---------------|---------------|---------------|-----------|-----------|
| CTI 25M  | 0.1 - 0.16  | -             | -             | -             | -         | -         |
|          | 0.16 - 0.25 | -             | -             | -             | -         | -         |
|          | 0.25 - 0.4  | -             | -             | -             | -         | -         |
|          | 0.4 - 0.63  | -             | -             | -             | -         | -         |
|          | 0.63 - 1.0  | -             | -             | -             | -         | -         |
|          | 1.0 - 1.6   | -             | -             | -             | -         | 16        |
|          | 1.6 - 2.5   | -             | -             | -             | -         | 20        |
|          | 2.5 - 4.0   | -             | -             | -             | -         | 35        |
|          | 4.0 - 6.3   | -             | -             | -             | -         | 50        |
|          | 6.3 - 10    | -             | -             | 63            | 80        | 50        |
|          | 10 - 16     | -             | 80            | 63            | 80        | 63        |
|          | 14.5 - 20   | 100           | 100           | 80            | 80        | 63        |
|          | 18 - 25     | 100           | 100           | 80            | 80        | 63        |
| 24 - 29  | 125         | 125           | 100           | 100           | 80        |           |
| 27 - 32  | 125         | 125           | 100           | 100           | 80        |           |
| CTI 45MB | 32 - 45     | -             | 125           | 125           | 125       | 100       |
| CTI 100  | 40 - 63     | -             | 160           | 160           | 160       | 160       |
|          | 63 - 90     | -             | 160           | 160           | 160       | 160       |

- = No fuse required

Circuit breaker for motor  
applications

| Type     | Thermal setting range [A] | Magnetic Trip current [A] | Breaking capacity in kA |          |           |          |           |          |          |          |          |          |
|----------|---------------------------|---------------------------|-------------------------|----------|-----------|----------|-----------|----------|----------|----------|----------|----------|
|          |                           |                           | 220-240 V               |          | 380-415 V |          | 440-460 V |          | 500 V    |          | 690 V    |          |
|          |                           |                           | $I_{cu}$                | $I_{cs}$ | $I_{cu}$  | $I_{cs}$ | $I_{cu}$  | $I_{cs}$ | $I_{cu}$ | $I_{cs}$ | $I_{cu}$ | $I_{cs}$ |
| CTI 25M  | 0.1 - 0.16                | 2.1                       | 100                     | 100      | 100       | 100      | 100       | 100      | 100      | 100      | 100      | 100      |
|          | 0.16 - 0.25               | 3.3                       | 100                     | 100      | 100       | 100      | 100       | 100      | 100      | 100      | 100      | 100      |
|          | 0.25 - 0.40               | 5.2                       | 100                     | 100      | 100       | 100      | 100       | 100      | 100      | 100      | 100      | 100      |
|          | 0.40 - 0.63               | 8.2                       | 100                     | 100      | 100       | 100      | 100       | 100      | 100      | 100      | 100      | 100      |
|          | 0.63 - 1.0                | 13                        | 100                     | 100      | 100       | 100      | 100       | 100      | 100      | 100      | 100      | 100      |
|          | 1.0 - 1.6                 | 21                        | 100                     | 100      | 100       | 100      | 100       | 100      | 100      | 100      | 8        | 8        |
|          | 1.6 - 2.5                 | 33                        | 100                     | 100      | 100       | 100      | 100       | 100      | 100      | 100      | 8        | 8        |
|          | 2.5 - 4.0                 | 52                        | 100                     | 100      | 100       | 100      | 100       | 100      | 100      | 100      | 8        | 8        |
|          | 4.0 - 6.3                 | 82                        | 100                     | 100      | 100       | 100      | 100       | 100      | 100      | 100      | 4        | 4        |
|          | 6.3 - 10                  | 130                       | 100                     | 100      | 100       | 100      | 50        | 50       | 50       | 50       | 4        | 4        |
|          | 10 - 16                   | 208                       | 100                     | 100      | 65        | 50       | 10        | 6        | 10       | 6        | 3        | 3        |
|          | 14.5 - 20                 | 260                       | 65                      | 50       | 50        | 15       | 6         | 6        | 6        | 6        | 3        | 3        |
|          | 18 - 25                   | 325                       | 65                      | 50       | 15        | 15       | 6         | 6        | 6        | 6        | 3        | 3        |
| 24 - 29  | 406                       | 50                        | 25                      | 15       | 15        | 6        | 6         | 6        | 6        | 3        | 3        |          |
| 27 - 32  | 448                       | 50                        | 25                      | 15       | 15        | 6        | 6         | 6        | 6        | 3        | 3        |          |
| CTI 45MB | 32 - 45                   | 585                       | 100                     | 100      | 65        | 50       | 50        | 50       | 50       | 50       | 10       | 6        |
| CTI 100  | 40 - 63                   | 882                       | 50                      | 50       | 20        | 8        | 10        | 6        | 10       | 6        | 4        | 4        |
|          | 63 - 90                   | 1260                      | 50                      | 50       | 20        | 8        | 10        | 6        | 10       | 6        | 4        | 4        |

## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### UL/CSA specifications

Auxiliary contacts and alarm contacts CBA-, CBA S-, CBT-, CBT S-, CBI 100-, CBI 100 UI-

| Type        | Description                           | AC   | DC   | Max back up fuse type gG, gL |
|-------------|---------------------------------------|------|------|------------------------------|
| CBA-        | Auxiliary contacts for front mounting | B300 | Q300 | 0A                           |
| CBA S-      | Auxiliary contacts for side mounting  | B600 | Q600 |                              |
| CBT S-      | Alarm contacts for side mounting      | B600 | Q600 |                              |
| CBI 100-    | Auxiliary contacts for front mounting | B600 | R300 |                              |
| CBI 100 UI- | Alarm contacts for front mounting     | B600 | R300 |                              |

### Terminals

| Type        | Comments                    | Recommended screwdriver size | Solid wire AWG | Stranded wire AWG | Stranded wire with sleeve AWG | Tightening torque lb-in |
|-------------|-----------------------------|------------------------------|----------------|-------------------|-------------------------------|-------------------------|
| CTI 25M     | 1 conductor or 2 conductors | Pozi 2/ blade 3              | No. 16-8       | No. 16-8          | No. 16-12                     | 8.9-22                  |
| CTI 45MB    | 1 conductor                 | Pozi 2/ blade 4              | No. 14-6       | No. 14-6          | No. 14-8                      | 13-31                   |
| CTI 45MB    | 2 conductors                | Pozi 2/ blade 4              | No. 14-4       | No. 14-4          | No. 14-6                      | 13-31                   |
| CBA-        | 1 conductor or 2 conductors | Pozi 2/ blade 3              | No. 14-6       | No. 14-6          | No. 14-8                      | 13.3                    |
| CBA S-      | 1 conductor or 2 conductors | Pozi 2/ blade 3              | No. 18-14      | No. 18-14         | No. 18-14                     | 13.3                    |
| CBT S-      | 1 conductor or 2 conductors | Pozi 2/ blade 3              | No. 18-14      | No. 18-14         | No. 18-14                     | 13.3                    |
| VT-         | 1 conductor or 2 conductors | Pozi 2/ blade 3              | No. 18-14      | No. 18-14         | No. 18-14                     | 13.3                    |
| VTU-        | 1 conductor or 2 conductors | Pozi 2/ blade 3              | No. 18-14      | No. 18-14         | No. 18-14                     | 13.3                    |
| CBA-        | 1 conductor or 2 conductors | Pozi 2/ blade 3              | No. 18-14      | No. 18-14         | No. 18-14                     | 13.3                    |
| BBT 25      | 1 conductor                 | Pozi 2/ blade 3              | No. 18-14      | No. 18-14         | No. 18-14                     | 27                      |
| BBT 25      | 2 conductors                | Pozi 2/ blade 3              | No. 14-6       | No. 14-6          | No. 14-8                      | 27                      |
| BBT 45      | 1 conductor                 | Pozi 2/ blade 4              | No. 14-4       | No. 14-4          | No. 14-6                      | 27                      |
| BBT 45      | 2 conductors                | Pozi 2/ blade 4              | No. 14-6       | No. 14-6          | No. 14-8                      | 27                      |
| CTI 100     | 1 conductor                 | Allen key 5                  | -              | No. 12-2          | -                             | 53-120                  |
| CBI 100-    | 2 conductors                | Pozi 2/ blade 3              | -              | No. 18-14         | -                             | 8.8-10.3                |
| CBI 100 UI- | 2 conductors                | Pozi 2/ blade 3              | -              | No. 18-14         | -                             | 8.8-10.3                |
| CBI 100 UA- | 2 conductors                | Pozi 2/ blade 3              | -              | No. 18-14         | -                             | 8.8-10.3                |
| CBI 100 AA- | 2 conductors                | Pozi 2/ blade 3              | -              | No. 18-14         | -                             | 8.8-10.3                |

### UL/CSA specifications

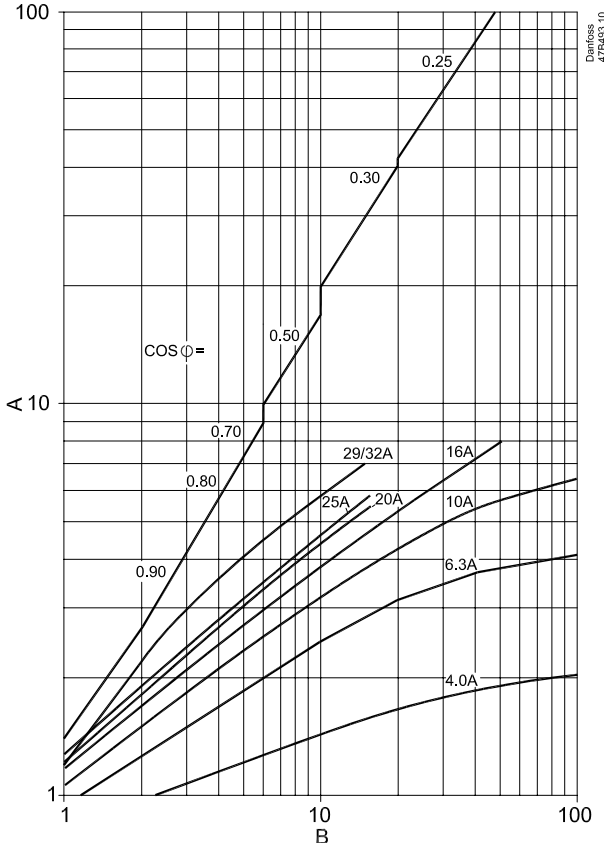
Circuit breaker for overload- and short circuit protection of motor applications

| Type     | Range [A]   | Motor rating in hp |       |             |       |       | Prospective short circuit current [kA] |       |
|----------|-------------|--------------------|-------|-------------|-------|-------|--|-------|
|          |             | 1-phase run        |       | 3-phase run |       |       | 480 V                                  | 600 V |
|          |             | 115 V              | 230 V | 230 V       | 460 V | 575 V |  |       |
| CTI 25M  | 0.1 - 0.16  | -                  | -     | -           | -     | -     | 65                                     | 47    |
|          | 0.16 - 0.25 | -                  | -     | -           | -     | -     | 65                                     | 47    |
|          | 0.25 - 0.4  | -                  | -     | -           | -     | -     | 65                                     | 47    |
|          | 0.4 - 0.63  | -                  | -     | -           | -     | -     | 65                                     | 47    |
|          | 0.63 - 1.0  | -                  | -     | -           | -     | 1/2   | 65                                     | 47    |
|          | 1.0 - 1.6   | -                  | 1/10  | -           | 3/4   | 3/4   | 65                                     | 47    |
|          | 1.6 - 2.5   | -                  | 1/6   | 1/2         | 1     | 1½    | 65                                     | 30    |
|          | 2.5 - 4.0   | 1/8                | 1/3   | 3/4         | 2     | 3     | 65                                     | 25    |
|          | 4.0 - 6.3   | 1/4                | 1/2   | 1½          | 3     | 5     | 65                                     | 30    |
|          | 6.3 - 10    | 1/2                | 1     | 3           | 5     | 7½    | 65                                     | 30    |
|          | 10 - 16     | 3/4                | 2     | 5           | 10    | 10    | 30                                     | 30    |
|          | 14.5 - 20   | 1                  | 3     | 5           | -     | 15    | 10                                     | 10    |
| 18 - 25  | 1½          | -                  | 7½    | 15          | 20    | 10    | 5                                      |       |
| 24 - 29  | -           | -                  | 10    | 20          | 25    | 10    | -                                      |       |
| 27 - 32  | -           | -                  | 10    | 25          | 30    | 10    | -                                      |       |
| CTI 45MB | 32 - 45     | 3                  | 7½    | 15          | 30    | 40    | 65                                     | 18    |
| CTI 100  | 40 - 63     | 5                  | 12    | 22          | 45    | 60    | 65                                     | 42    |
|          | 63 - 90     | 7.2                | 20    | 30          | 70    | 85    | 65                                     | 30    |

**Circuit Breakers CTI 25M, CTI 45 MB, CTI 100**

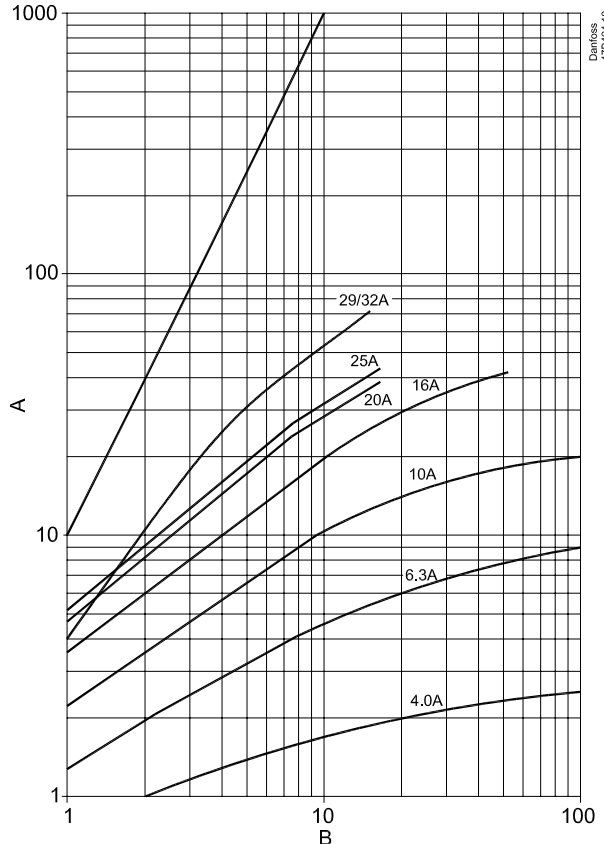
**Let-through curves for circuit breakers CTI 25M**

Max let-through current for circuit breakers CTI 25M



A: Max let-through current  $I_D$  [kA]  
 B: The prospective short circuit current at 415 V  $I_{CC}$  [kA]

Max let-through energy for circuit breakers CTI 25M

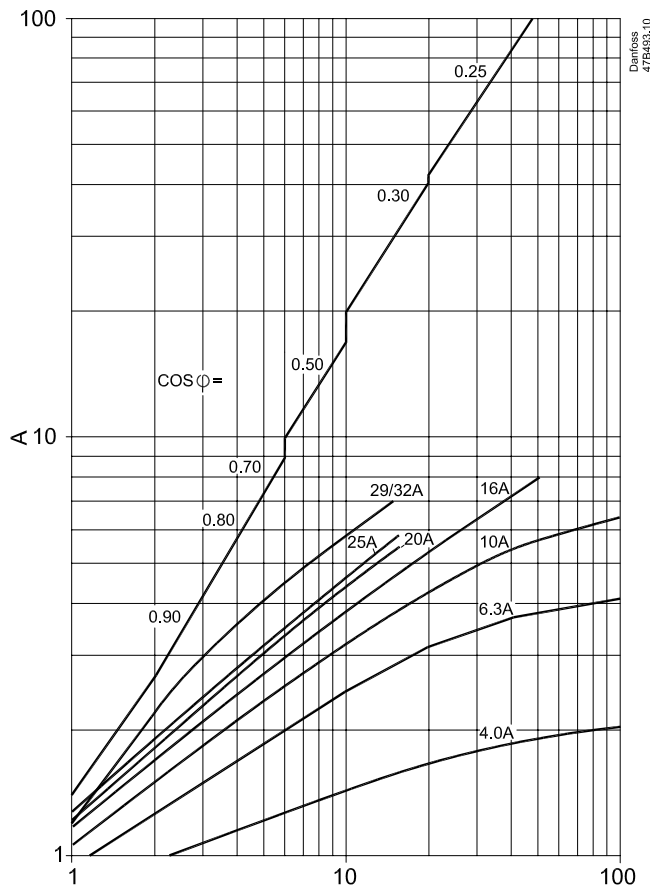


A: Max let-through energy  $I^2t$  [ $kA^2 \cdot s$ ]  
 B: The prospective short circuit current at 415 V  $I_{CC}$  [kA]

**Circuit Breakers CTI 25M, CTI 45 MB, CTI 100**

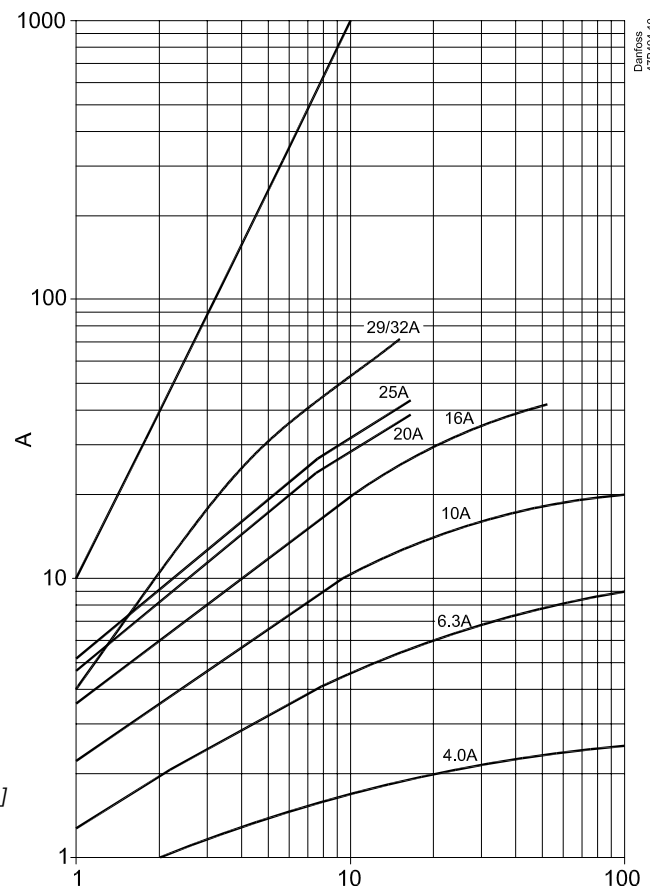
**Let-through curves for circuit breakers CTI 45MB**

Max let-through current for circuit breakers CTI 45MB



A: Max let-through current  $I_D$  [kA]  
 B: The prospective short circuit current at 415 V  $I_{CC}$  [kA]

Max let-through energy for circuit breakers CTI 45MB

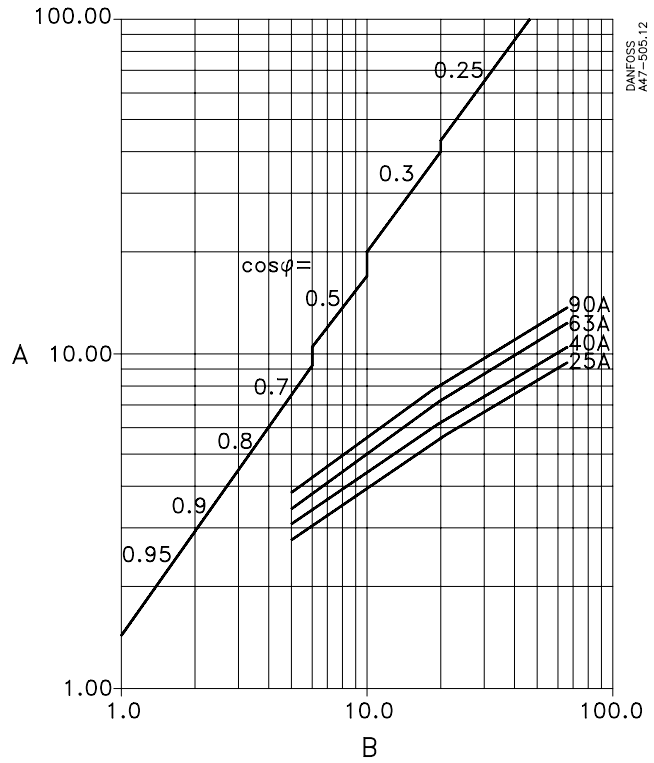


A: Max let-through energy  $I^2t$  [ $kA^2s$ ]  
 B: The prospective short circuit current at 415 V  $I_{CC}$  [kA]

**Circuit Breakers CTI 25M, CTI 45 MB, CTI 100**

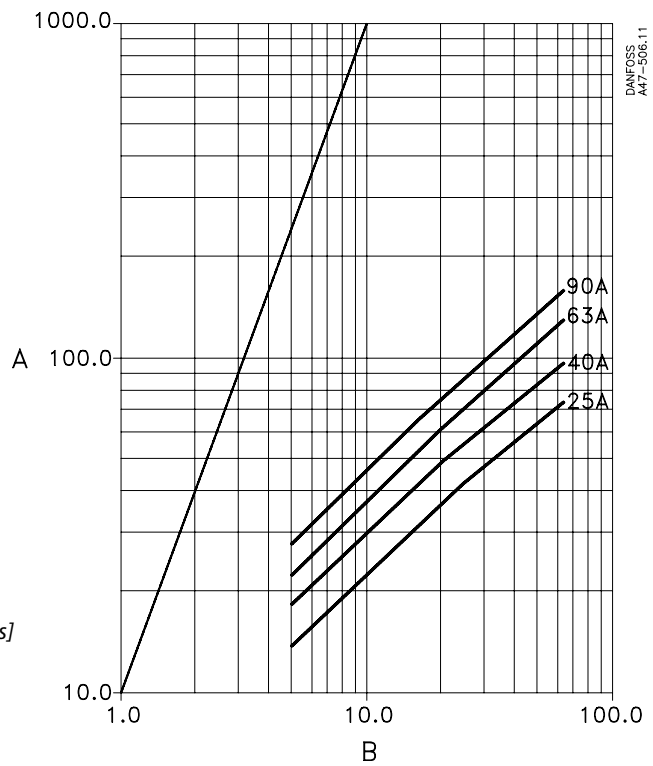
**Let-through curves for circuit breakers CTI 100**

Max let-through current for circuit breaker CTI 100



A: Max let-through current  $I_D$  [kA]  
B: The prospective short circuit current at 415 V  $I_{CC}$  [kA]

Max let-through energy for circuit breaker CTI 100



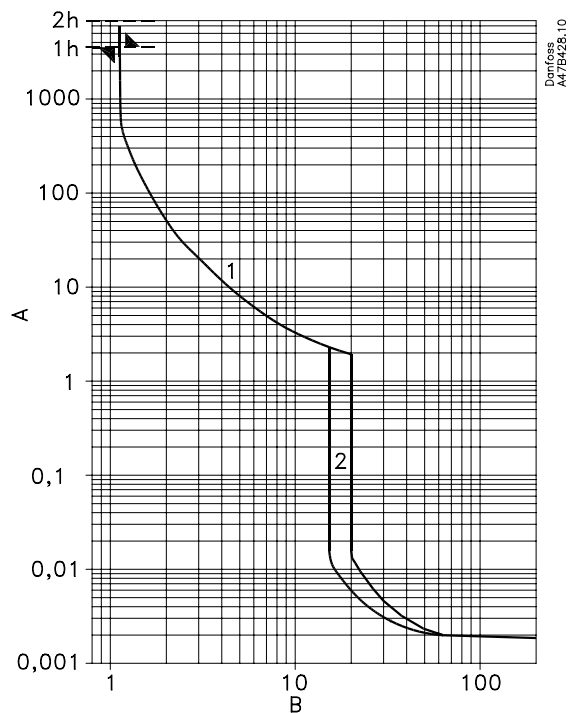
A: Max let-through current  $I^2t$  [kA²s]  
B: The prospective short circuit current at 415 V  $I_{CC}$  [kA]



## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### Overload protection of motors

Tripping characteristic for CTI 25M



A: Trip time in sec.  
B: Times the adjustable current  $I_{ef}$

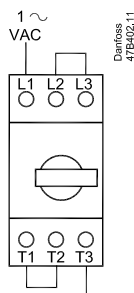
#### 1) Thermal trip

The adjustable bimetals ensure a reliable overload protection of motors. The curve is mean value curve at 20°C ambient temperature from cold state. It also ensures protection of motors by phase failure (differential trip).

All three bimetals must be connected in series by overload protection of 1-phase motors.

#### 2) Magnetic trip

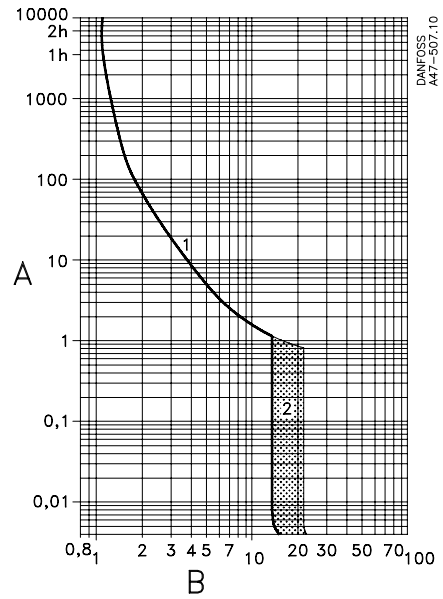
The electromagnetic trips react at a fixed response current. The size of the fixed response current correspond typically to 13 times of the maximum range of the circuit breakers CTI 25M, CTI 45MB.



**Circuit Breakers CTI 25M, CTI 45 MB, CTI 100**

**Overload protection of motors**

*Tripping characteristic for CTI 100*



A: Trip times in sec.  
B: Times the adjustable current  $I_a$

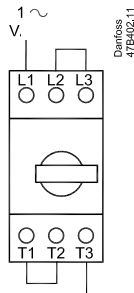
**1) Thermal trip**

The adjustable bimetals ensure a reliable overload protection of motors. The curve is mean value curve at 20°C ambient temperature from cold state. It also ensures protection of motors by phase failure (differential trip).

All three bimetals must be connected in series by overload protection of 1-phase motors.

**2) Magnetic trip**

The electromagnetic trips react at a fixed response current. The size of the fixed response current correspond typically to 13 times of the maximum range of the circuit breakers CTI 25M, CTI 25MB, CTI 45MB.

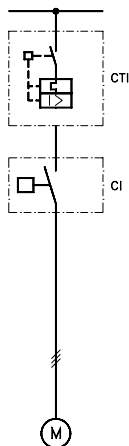


## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### Coordination without fuse

#### Circuit breakers and contactors

Max. prospective short circuit-current  $I_q = 50 \text{ kA}$   
 Voltage 380-415 V/50 Hz  
 Overload protection CTI 25M-MB, CTI 45MB, CTI 100  
 Short-circuit protection CTI 25M-MB, CTI 45MB, CTI 100  
 Short-circuit coordination T1 and T2

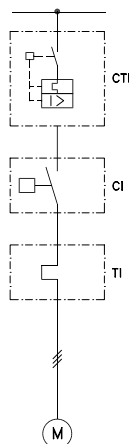


| Contactor                     | Coordination type 1                  |                     | Coordination type 2 |                     |
|-------------------------------|--------------------------------------|---------------------|---------------------|---------------------|
|                               | $I_r^{1)}$ and $I_q = 50 \text{ kA}$ |                     |                     |                     |
|                               | CTI 25M                              | CTI 45MB<br>CTI 100 | CTI 25 M            | CTI 45MB<br>CTI 100 |
|                               | Max. CTI range (A)                   |                     |                     |                     |
| CI 5-2, CI 5, CI 5-9, CI 5-12 | 25                                   | 45                  | 2.5                 | 2.5                 |
| CI 6, CI 9                    | 25                                   | 45                  | 2.5                 | 2.5                 |
| CI 12, CI 15                  | 25                                   | 45                  | 4.0                 | 4.0                 |
| CI 16                         | 25                                   | 45                  | 6.3                 | 20                  |
| CI 20, CI 25                  | 25                                   | 45                  | 6.3                 | 25                  |
| CI 30                         | 25                                   | 45                  | 10                  | 25                  |
| CI 32                         | -                                    | 45                  | -                   | 32                  |
| CI 37, CI 45, CI 50           | -                                    | 90                  | -                   | 45                  |
| CI 61, CI 73, CI 86           | -                                    | -                   | -                   | 90                  |

<sup>1)</sup> Short-circuit current according to EN 60947-4 (see page 16)

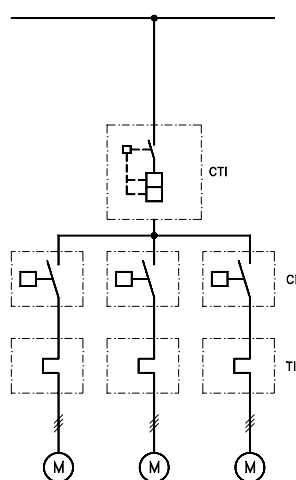
#### Circuit breakers, contactors and thermal overload relays

Max. prospective short-circuit current  $I_q = 50 \text{ kA}$   
 Voltage 380-415 V/50 Hz  
 Overload protection Thermal overload relay type T1 9C, T1 16C, T1 25C, T1 30C, T1 80  
 Short-circuit protection CTI 25M-MB, CTI 45MB, CTI 100  
 Short-circuit coordination T1



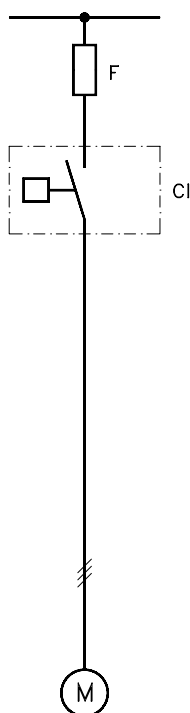
| Contactor          | Thermal overload relay range [A] | Coordination type T1<br>Test current $I_r^{1)}$ and $I_q = 50 \text{ kA}$<br>Max. CTI range [A] |
|--------------------|----------------------------------|---|
| CI 5-9, CI 6, CI 9 | 0.13 - 0.20                      | 45 A  |
| CI 5-9, CI 6, CI 9 | 0.19 - 0.29                      |   |
| CI 5-9, CI 6, CI 9 | 0.27 - 0.42                      |   |
| CI 5-9, CI 6, CI 9 | 0.4 - 0.62                       |   |
| CI 5-9, CI 6, CI 9 | 0.6 - 0.92                       |   |
| CI 5-9, CI 6, CI 9 | 0.85 - 1.3                       |   |
| CI 5-9, CI 6, CI 9 | 1.2 - 1.9                        | 63 A  |
| CI 5-9, CI 6, CI 9 | 1.8 - 2.8                        |   |
| CI 5-9, CI 6, CI 9 | 2.7 - 4.2                        |   |
| CI 5-9, CI 6, CI 9 | 4 - 6.2                          |   |
| CI 9               | 6 - 9.2                          |   |
| CI 12, CI 15       | 8 - 12                           |   |
| CI 15, CI 16       | 11 - 16                          | 90 A  |
| CI 16, CI 20       | 15 - 20                          |   |
| CI 25              | 19 - 25                          |   |
| CI 30              | 24 - 32                          |   |
| CI 32              | 22 - 32                          |   |
| CI 37, CI 45       | 30 - 45                          |   |
| CI 50, CI 61       | 42 - 63                          |   |
| CI 73              | 60 - 80                          |   |
| CI 86              | 74 - 85                          |   |

<sup>1)</sup> Short-circuit current according to EN 60947-4 (see page 16)



## Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

### Coordination with fuse



### Contactors

Max. prospective short-circuit current  
Voltage  
Overload/short-circuit protection  
Short-circuit coordination

$I_q = 50$  kA  
380-415 V/50 Hz  
gG and T (BS88)  
T1 and T2

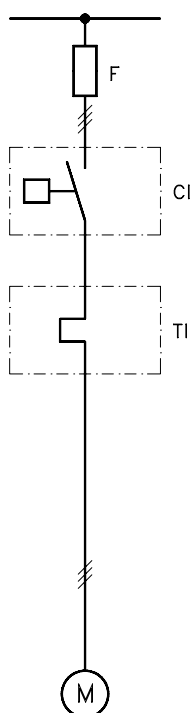
| Contactor                | Short-circuit coordination   |        |                              |        |                              |    |
|--------------------------|------------------------------|--------|------------------------------|--------|------------------------------|----|
|                          | T1                           |        | T2                           |        |                              |    |
|                          | Test current                 |        |                              |        |                              |    |
|                          | $I_r^{1)}$ and $I_Q = 50$ kA |        | $I_r^{1)}$ and $I_Q = 10$ kA |        | $I_r^{1)}$ and $I_Q = 50$ kA |    |
| gG [A]                   | T [A]                        | gG [A] | T [A]                        | gG [A] | T [A]                        |    |
| CI 5-2, CI 5-9, CI 5-12  | 25                           | 32     | 16                           | 20     | 16                           | 20 |
| CI 6, CI 9, CI 12, CI 15 | 50                           | 63     | 25                           | 32     | 25                           | 32 |
| CI 16                    | 80                           | 80     | 25                           | 32     | 25                           | 32 |
| CI 20, CI 25             | 80                           | 08     | 25                           | 32     | 25                           | 32 |
| CI 30                    | 80                           | 80     | 35                           | 40     | 25                           | 32 |
| CI 32                    | 125                          | 125    | 50                           | 63     | 35                           | 40 |
| CI 37, CI 45, CI 50      | 125                          | 125    | 80                           | 80     | 80                           | 80 |
| CI 61, CI 73, CI 86      | 250                          | -      | -                            | -      | 160                          | -  |
| CI 110                   | 250                          | -      | -                            | -      | 200                          | -  |
| CI 141                   | 315                          | -      | -                            | -      | 250                          | -  |
| CC 180 EI                | 355                          | -      | -                            | -      | 315                          | -  |
| CI 210 EI, CI 250 EI     | 500                          | -      | -                            | -      | 400                          | -  |

<sup>1)</sup> Short-circuit current according to EN 60947-4 (see page 16)

### Contactors and thermal overload relays

Max. prospective short-circuit current  
Voltage  
Overload/short-circuit protection  
Short-circuit coordination

$I_q = 50$  kA  
380-415 V/50 Hz  
gG and T (BS88)  
T1 and T2



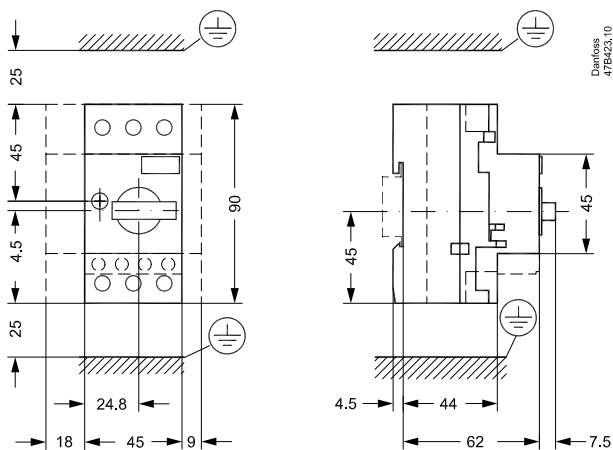
| Contactor            | Thermal overload relay<br>A | Short-circuit coordination   |       |                              |       |                              |    |
|----------------------|-----------------------------|------------------------------|-------|------------------------------|-------|------------------------------|----|
|                      |                             | T1                           |       | T2                           |       |                              |    |
|                      |                             | Test current                 |       |                              |       |                              |    |
|                      |                             | $I_r^{1)}$ and $I_Q = 50$ kA |       | $I_r^{1)}$ and $I_Q = 10$ kA |       | $I_r^{1)}$ and $I_Q = 50$ kA |    |
| gG [A]               | T [A]                       | gG [A]                       | T [A] | gG [A]                       | T [A] |                              |    |
| CI 5-9, CI 6, CI 9   | 0.13 - 0.20                 | 25                           | 32    | 2                            | 2     | -                            | -  |
| CI 5-9, CI 6, CI 9   | 0.19 - 0.29                 | 25                           | 32    | 2                            | 2     | -                            | 2  |
| CI 5-9, CI 6, CI 9   | 0.27 - 0.42                 | 25                           | 32    | 2                            | 2     | 2                            | 2  |
| CI 5-9, CI 6, CI 9   | 0.4 - 0.62                  | 25                           | 32    | 4                            | 4     | 4                            | 4  |
| CI 5-9, CI 6, CI 9   | 0.6 - 0.92                  | 25                           | 32    | 4                            | 6     | 4                            | 6  |
| CI 5-9, CI 6, CI 9   | 0.85 - 1.3                  | 25                           | 32    | 4                            | 6     | 4                            | 6  |
| CI 5-9, CI 6, CI 9   | 1.2 - 1.9                   | 25                           | 32    | 6                            | 10    | 6                            | 10 |
| CI 5-9, CI 6, CI 9   | 1.8 - 2.8                   | 25                           | 32    | 6                            | 10    | 6                            | 10 |
| CI 5-9, CI 6, CI 9   | 2.7 - 4.2                   | 25                           | 32    | 16                           | 20    | 16                           | 20 |
| CI 5-9, CI 6, CI 9   | 4 - 6.2                     | 35                           | 40    | 20                           | 25    | 20                           | 25 |
| CI 5-9, CI 6, CI 9   | 6 - 9.2                     | 50                           | 50    | 20                           | 25    | 20                           | 25 |
| CI 12                | 8 - 12                      | 63                           | 63    | 25                           | 32    | 25                           | 32 |
| CI 15, CI 16         | 11 - 16                     | 80                           | 80    | 25                           | 32    | 25                           | 32 |
| CI 20, CI 25         | 15 - 20                     | 80                           | 80    | 35                           | 40    | 35                           | 40 |
| CI 25                | 19 - 25                     | 80                           | 80    | 35                           | 40    | 35                           | 40 |
| CI 30                | 24 - 32                     | 80                           | 80    | 35                           | 40    | 35                           | 40 |
| CI 32                | 16 - 23                     | 125                          | 125   | 50                           | 63    | 35                           | 40 |
| CI 32                | 22 - 32                     | 125                          | 125   | 63                           | 63    | 35                           | 40 |
| CI 37, CI 45         | 30 - 45                     | 125                          | 125   | 80                           | 80    | 63                           | 63 |
| CI 50                | 42 - 63                     | 125                          | 125   | 80                           | 80    | 63                           | 63 |
| CI 61                | 42 - 63                     | 160                          | -     | -                            | -     | 80                           | -  |
| CI 73                | 60 - 80                     | 160                          | -     | -                            | -     | 125                          | -  |
| CI 86                | 74 - 85                     | 160                          | -     | -                            | -     | 160                          | -  |
| CI 98                | 20 - 180                    | 250                          | -     | -                            | -     | 200                          | -  |
| CI 141               | 20 - 180                    | 315                          | -     | -                            | -     | 250                          | -  |
| CI 180 EI            | 20 - 180                    | 355                          | -     | -                            | -     | 315                          | -  |
| CI 210 EI, CI 250 EI | 160 - 630                   | 500                          | -     | -                            | -     | 400                          | -  |
| CI 300 EI, CI 420    | 160 - 630                   | 630                          | -     | -                            | -     | 500                          | -  |

<sup>1)</sup> Short-circuit current according to EN 60947-4 (see page 16)

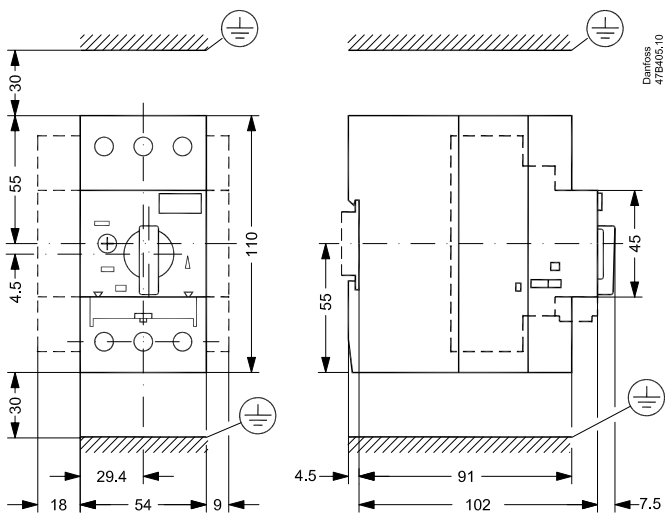
# Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

## Dimensions

Circuit breakers CTI 25M



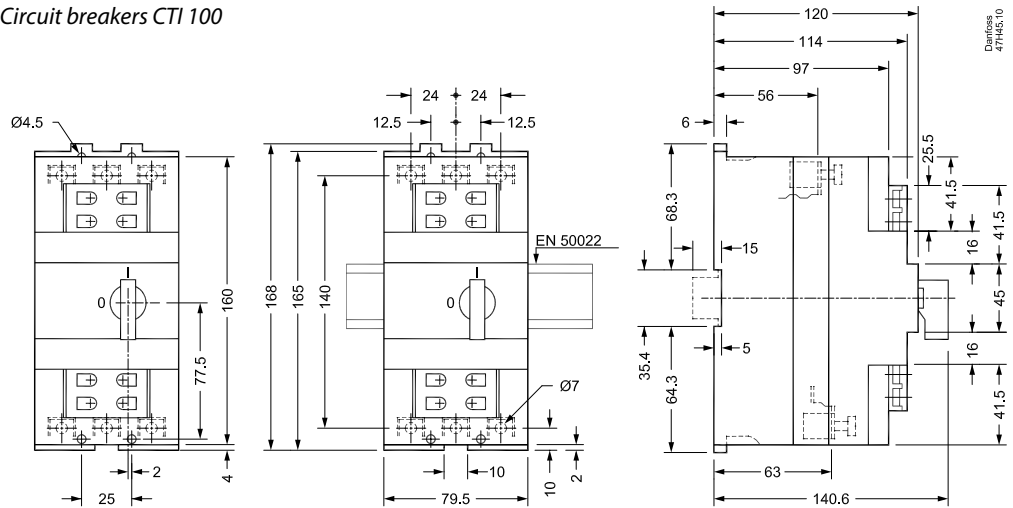
Circuit breakers CTI 45MB



# Circuit Breakers CTI 25M, CTI 45 MB, CTI 100

## Dimensions

### Circuit breakers CTI 100



### Enclosures BMG and BMY for circuit breakers CTI 25M

