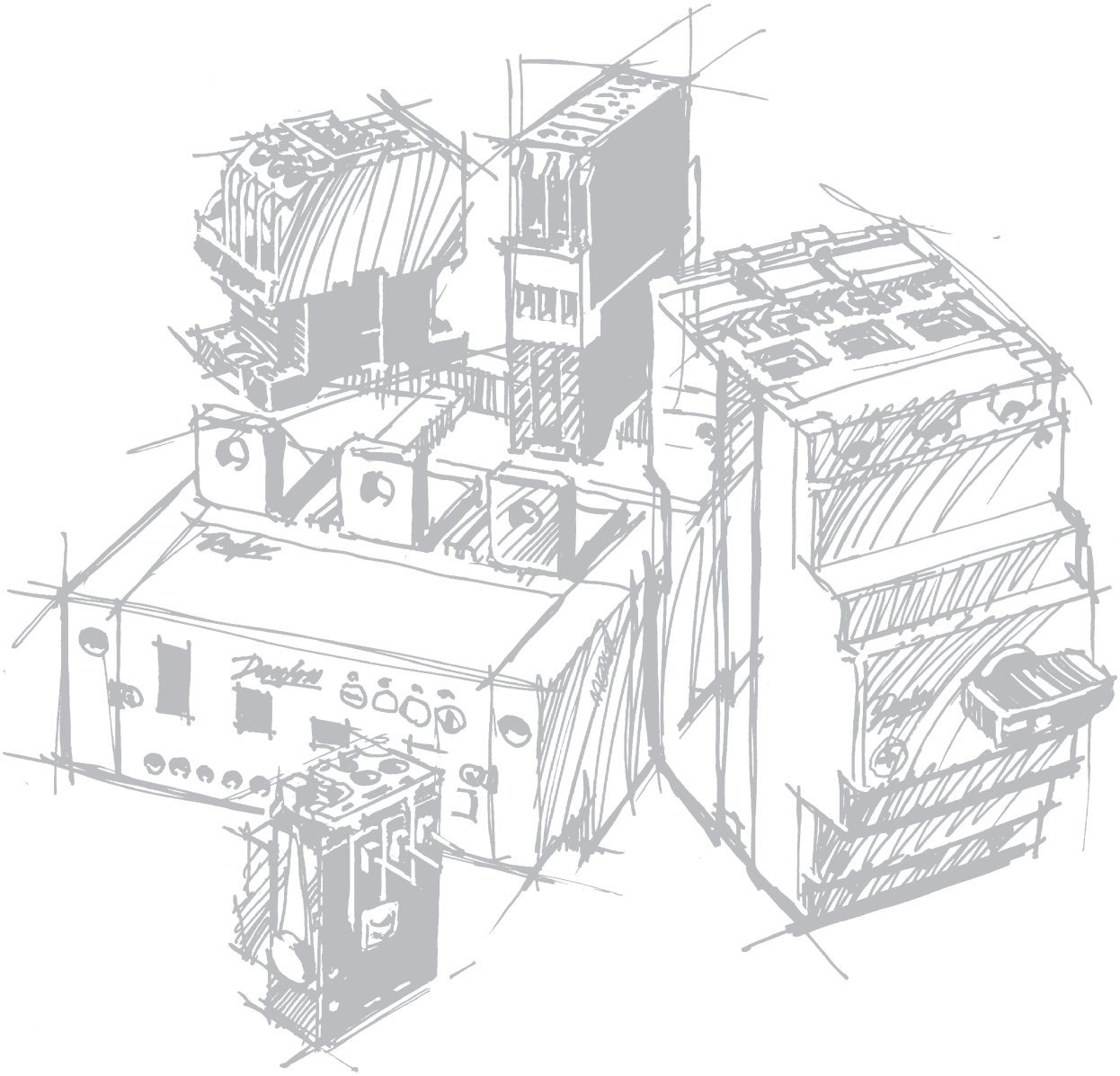
Data sheet



CI-TI ™ Contactors and Motor Starters

Circuit Breakers CTI 25M - 100

September 2002

DKACT.PD.C00.F2.02
520B1343

Product description

Circuit breakers for short circuit- and overload protection of motor applications cover together with the circuit breaker CTI 100 the current range 0.1-90A AC-3 rating. The product range is split in three product sizes. The smallest size is CTI 25M. It consists of 13 code numbers and covers the current range 0.1 – 25A. The next size is called CTI 25MB. It has a higher short circuit breaking capacity than CTI 25M because the current limiter is built-in. It consists of seven code numbers and cover the current range 1.6 – 25A. The biggest size is called CTI 45MB. It consists of six code numbers and covers the current range from 10 – 45A. The program is very flexible and consist of add-on accessories such as auxiliary contacts, alarm contacts, voltage- and under voltage trips, connection terminals and bus bars.

Product properties:

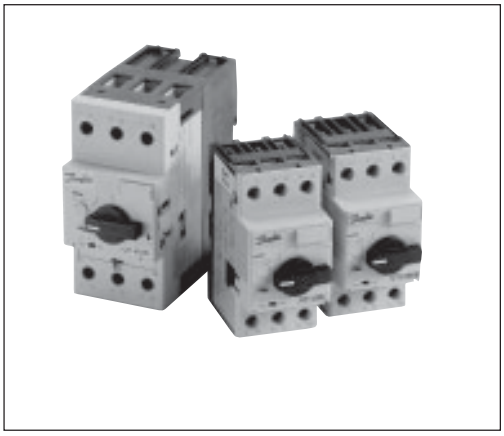
- Over load protection and short circuit protection of motor installations.
- Test function for thermal trip
- Manual reset function
- Indication for thermal trip
- Indication for magnetic trip (short circuiting)
- Single phase protection (Differential trip)
- Temperature compensated (-20 ^{0}C to + 60)
- Tripping class 10

Ordering

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

AC-3 Load 380-415V kW	Range Motor Starter A	Electromagnetic Trip current A	**Code number**	Type
0.02	0.1-0.16	2.1	**047B3140**	CTI 25M
0.06	0.16-0.25	3.3	**047B3141**	
0.09	0.25-0.40	5.2	**047B3142**	
0.18	0.4-0.63	8.2	**047B3143**	
0.25	0.63-1.0	13	**047B3144**	
0.55	1.0-1.6	21	**047B3145**	
0.75	1.6-2.5	33	**047B3146**	
1.5	2.5-4.0	52	**047B3147**	
2.2	4.0-6.3	82	**047B3148**	
4.0	6.3-10	130	**047B3149**	
7.5	10-16	208	**047B3150**	
10	14.5-20	260	**047B3151**	
11	18-25	325	**047B3152**	
0.75	1.6-2.5	33	**047B3153**	CTI 25MB
1.5	2.5-4.0	52	**047B3154**	
2.2	4.0-6.3	82	**047B3155**	
4.0	6.3-10	130	**047B3156**	
7.5	10-16	208	**047B3157**	
10	14.5-20	260	**047B3158**	
11	18-25	325	**047B3159**	
4.0	6.3-10	130	**047B3160**	CTI 45MB
7.5	10-16	208	**047B3161**	
10	14.5-20	260	**047B3162**	
11	18-25	325	**047B3163**	
15	23-32	416	**047B3164**	
22	32-45	585	**047B3165**	
31.5	40-63	882	**047B3014**	CTI 100
45	63-90	1260	**047B3015**	

Product description



Circuit breakers for short circuit protection of wire- and starter applications with fixed current setting. The program covers the current range from 0.1 – 45A. The product range is split up in three product sizes. The smallest size is called CTI 25S. It consists of seven code numbers and covers the current range 0.16A up to 2.5A. The next size is called CTI 25SB. CTI 25SB has a higher short circuit breaking capacity than CTI 25S. CTI 25SB consists of six code numbers and covers the currents from 2.5A up to 25A. The biggest size is called CTI 45SB. It consists of three code numbers and covers the currents from 25A to 45A.
The program is very flexible and consist of add-on accessories such as auxiliary contacts, alarm contacts, voltage- and under voltage trips, connection terminals and bus bars.

Product properties:
- Short circuit protection of contactor installations
- Test function for magnetic trip
- Manual reset function
- Indication for magnetic trip (short circuiting)
- Temperature compensated (-20 ^{0}C to + 60^{0}C)

Ordering

Circuit Breakers CTI 25S, CTI 25SB, CTI 45SB

AC-3 load 380-415V kW	Max. load A	Electromagnetic Trip current A	**Code number**	Type
0.02	0.16	2.1	**047B3166**	CTI 25S
0.06	0.25	3.3	**047B3167**	
0.09	0.4	5.2	**047B3168**	
0.18	0.63	8.2	**047B3169**	
0.25	1.0	13	**047B3170**	
0.55	1.6	20	**047B3171**	
0.75	2.5	32	**047B3172**	
0.75	2.5	32	**047B3173**	CTI 25SB
1.5	4.0	52	**047B3174**	
2.2	6.3	82	**047B3175**	
4.0	10	130	**047B3176**	
7.5	16	208	**047B3177**	
11	25	325	**047B3178**	
11	25	325	**047B3179**	CTI 45SB
15	32	416	**047B3180**	
22	45	585	**047B3181**	

Product description

Circuit breakers for overload- and short circuit protection of transformer applications cover the current range
0.1 – 32A. The circuit breaker breaks at a very high electromagnetic trip current. The product program is split up in three product sizes. The smallest size is called CTI 16T. It consists of 11 code numbers and covers the current range from 0.1 – 16A. The next size is called CTI 20TB. CTI 20TB has a higher short circuit breaking capacity than CTI 16T because a current limiter is built-in. CTI 20TB consists of two code numbers and covers the current range 10 – 20A. The biggest size is called CTI 32TB. It consists of two code numbers and cover the current range from 20 – 32A.
The program is very flexible and consists of add-on accessories such as auxiliary contacts, alarm contacts, voltage- and under voltage trips, connection terminals and bus bars.

Product properties:
- Overload protection and short circuit protection of motor installations and transformer applications.
- Test function for thermal trip
- Manual reset function
- Indication for thermal trip
- Indication for magnetic trip (short circuiting)
- Temperature compensated (-20 ^{0}C to + 60 ^{0}C)
- Phase-failure protection
- Tripping class 10

Ordering

Circuit breaker/ Manual motor starter CTI 16T, CTI 20TB, CTI 32TB

AC-3 Load 380-415V kW	Range Motor Starter A	Electromagnetic Trip current A	**Code number**	Type
0.02	0.1 - 0.16	3.2	**047B3183**	CTI 16T
0.06	0.16 - 0.25	5.2	**047B3184**	
0.09	0.25 - 0.4	8.2	**047B3185**	
0.18	0.4 - 0.63	13	**047B3186**	
0.25	0.63 - 1.0	21	**047B3187**	
0.55	1.0 - 1.6	32	**047B3188**	
0.75	1.6 - 2.5	52	**047B3189**	
1.5	2.5 - 4.0	82	**047B3190**	
2.2	4.0 - 6.3	130	**047B3191**	
4.0	6.3 - 10	208	**047B3192**	
7.5	10 - 16	260	**047B3193**	
7.5	10 - 16	260	**047B3194**	CTI 20TB
10	14.5 - 20	325	**047B3195**	
11	18 - 25	416	**047B3196**	CTI 32TB
15	23 - 32	585	**047B3197**	

Ordering

CBA -
CBT -

CBA S-
CBT S-

Auxiliary contacts and Alarm contacts to circuit breakers
CTI 25M-MB, CTI S-SB, CTI 45MB-SB, CTI 16T- 20TB, CTI 32TB

Type	Remarks	Code number
CBA-10	Auxiliary contact, 1NO (13-14), front mounting, max one pr circuit breaker	**047B3198**
CBA-01	Auxiliary contact, 1NC (11-12), front mounting, max one pr circuit breaker	**047B3199**
CBA-11	Auxiliary contact, 1NO+1NC (13-14, 21-22), front mounting, max one pr circuit breaker	**047B3200**
CBA-20	Auxiliary contact, 2NO (13-14, 23-24), front mounting, max one pr circuit breaker	**047B3201**
CBA-02	Auxiliary contact, 2NC (11-12, 21-22), front mounting, max one pr circuit breaker	**047B3202**
CBA S-11	Auxiliary contact, 1NO+1NC (33-34, 41-42), side mounting, max one pr circuit breaker. Can also be mounted onto an alarm contact CBT S-	**047B3203**
CBA S-20	Auxiliary contact, 2NO (33-34, 43-44), side mounting, max one pr circuit breaker. Can also be mounted onto an alarm contact CBT S-	**047B3204**
CBA S-02	Auxiliary contact, 2NC (31-32, 41-42), side mounting, max one pr circuit breaker. Can also be mounted onto an alarm contact CBT S-	**047B3205**
CBT 1T-1A	Trip alarm contact (make, 27-28) + Auxiliary contact 1NC (11-12), front mounting max one pr circuit breaker.	**047B3206**
CBT 2TA	Trip alarm contact (make, 27-28) + Auxiliary contact 1NO (13-14), front mounting max one pr circuit breaker.	**047B3207**
CBT S-2TM	Trip alarm contact (make, 57-58) + Magnetic alarm contact (make, 67-68), side mounting always direct onto the circuit breaker. Can also be mounted together with CBA S-	**047B3208**
CBT S-1T-1M	Trip alarm contact (make, 57-58) + Magnetic alarm contact (break, 65-66), side mounting always direct onto the circuit breaker. Can also be mounted together with CBA S-	**047B3209**
CBT S-1M-1T	Magnetic alarm contact (make, 67-68) + Trip alarm contact (break, 55-56), side mounting always direct onto the circuit breaker. Can also be mounted together with CBA S-	**047B3210**
CBT S-TM2	Trip alarm contact (make, 55-56) + Magnetic alarm contact(break, 65-66), side mounting always direct onto the circuit breaker. Can also be mounted together with CBA-S	**047B3211**
CBT S-1M-1M	Magnetic alarm contact (make, 77-78) + Magnetic alarm contact (break, 65-66) side mounting always direct onto the circuit breaker. Can also be mounted together CBA S-	**047B3212**

VTU-
VTU 2EM -

Under voltage- and voltage trips to circuit breakers
CTI 25M-MB, CTI 25S-SB, CTI 45MB-SB, CTI 16T- 20TB, CTI 32TB

Type	Remarks	Code number
VTU	Under voltage trip, 21V/50Hz-24V/60Hz, D1-D2	**047B3213**
VTU	Under voltage trip, 24V/50Hz-28V/60Hz, D1-D2	**047B3214**
VTU	Under voltage trip, 105V/50Hz-120V/60Hz, D1-D2	**047B3215**
VTU	Under voltage trip, 110V/50Hz-127V/60Hz, D1-D2	**047B3216**
VTU	Under voltage trip, 220-230V/50Hz, D1-D2	**047B3217**
VTU	Under voltage trip, 240-260V/60Hz, D1-D2	**047B3218**
VTU	Under voltage trip, 240V/50Hz-277V/60Hz, D1-D2	**047B3219**
VTU	Under voltage trip, 380-400V/50Hz, 440-460V/60Hz, D1-D2	**047B3220**
VTU	Under voltage trip, 415V/50Hz-480V/60Hz, D1-D2	**047B3221**
VTU 2EM	Under voltage trip, 21V/50Hz-24V/60Hz, D1-D2, with two early make 07-08)	**047B3222**
VTU 2EM	Under voltage trip, 24V/50Hz-28V/60Hz, D1-D2, (with two early make 07-08)	**047B3223**
VTU 2EM	Under voltage trip, 105V/50Hz-120V/60Hz, D1-D2, (with two early make 07-08)	**047B3224**
VTU 2EM	Under voltage trip, 110V/50Hz-127V/60Hz, D1-D2, (with two early make 07-08)	**047B3225**
VTU 2EM	Under voltage trip, 220-230V/50Hz, D1-D2, (with two early make 07-08)	**047B3226**
VTU 2EM	Under voltage trip, 240-260V/60Hz, D1-D2, (with two early make 07-08)	**047B3227**
VTU 2EM	Under voltage trip, 240V/50Hz-277V/60Hz, D1-D2, (with two early make 07-08)	**047B3228**
VTU 2EM	Under voltage trip, 380-400V/50Hz, 440-460V/60Hz, D1-D2, (two early make 07-08)	**047B3229**
VTU 2EM	Under voltage trip, 415V/50Hz-480V/60Hz, D1-D2, (with two early make 07-08)	**047B3230**
VT	Voltage trip, 21V/50Hz-24V/60Hz, C1-C2	**047B3231**
VT	Voltage trip, 24V/50Hz-28V/60Hz, C1-C2	**047B3232**
VT	Voltage trip, 105V/50Hz-120V/60Hz, C1-C2	**047B3233**
VT	Voltage trip, 110V/50Hz-127V/60Hz, C1-C2	**047B3234**
VT	Voltage trip, 220-230V/50Hz, C1-C2	**047B3235**
VT	Voltage trip, 240-260V/60Hz, C1-C2	**047B3236**
VT	Voltage trip, 240V/50Hz-277V/60Hz	**047B3237**
VT	Voltage trip, 380-400V/50Hz, 440-460V/60Hz, C1-C2	**047B3238**
VT	Voltage trip, 415V/50Hz-480V/60Hz, C1-C2	**047B3239**

VT -

Ordering

Anti tamper shield

BLK
RLK -

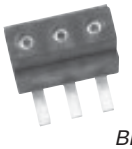
LA

BDH
RDH

BMP
RMP

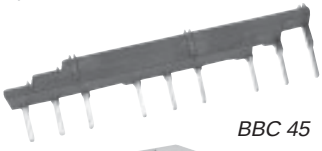
Door handle extension

BBT 25



BBT 45

BBC 25



BBC 45

Terminal cover

Accessories for circuit breakers CTI 25M-MB, CTI 25 S-SB, CTI 45MB-SB, CTI 16T- 20TB, CTI 32TB

Type	Remarks	Code number
	Anti tamper shield against inadvertent adjustment of current setting	**047B3241**
BLK	Black lockable rotary handle	**047B3243**
RLK 25	Red/ yellow lockable rotary handle for CTI 25M-MB, CTI 25S-SB, CTI 16T-20TB	**047B3245**
RLK 45	Red/yellow lockable rotary handle for CTI 45MB-SB, CTI 32TB	**047B3247**
LA	Locking bracket for max three padlock	**047B3248**
BDH	Black door handle for mounting in panel doors IP 66	**047B3249**
RDH	Red/ yellow door handle for mounting in panel doors IP 66	**047B3250**
	Extension rod for door handle BDH and RDH	**047B3136**
BMP	Black marking plate for BDH	**047B3252**
RMP	Red/ yellow marking plate for RDH	**047B3254**
	Screw mounting bracket for circuit breaker	**047B3256**
	Connection module between CTI 25MB, CTI 25SB, CTI16T, CTI 20TB and CI 4-	**047B3258**

Connection terminal blocks and bus bars for circuit breakers CTI 25M-MB, CTI 25S-SB, CTI 45MB-SB, CTI 16T- 20TB, CTI 32TB

Type	Remarks	Code number
BBT 25	Connection terminal block for CTI 25M-MB, CTI 25S-SB og CTI 16T-20TB	**047B3259**
BBT 45	Connection terminal block for CTI 45MB, CTI 45SB og CTI 32TB	**047B3260**
BBC 25 45-2	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (2x45mm)	**047B3261**
BBC 25 45-3	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (3x45mm)	**047B3262**
BBC 25 45-4	Bus bar forl CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (4x45mm)	**047B3263**
BBC 25 45-5	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (5x45mm)	**047B3264**
BBC 25 54-2	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (2x54mm)	**047B3265**
BBC 25 54-3	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (3x54mm)	**047B3266**
BBC 25 54-4	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (4x54mm)	**047B3267**
BBC 25 54-5	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (5x54mm)	**047B3268**
BBC 25 54-2B	Bus bar for CTI 25M/MB, CTI 25S/SB and CTI 16T/20TB (2x54mm)	**047B3269**
BBC 25 63-2	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (2x63mm)	**047B3270**
BBC 25 63-3	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (3x63mm)	**047B3271**
BBC 25 63-4	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (4x63mm)	**047B3272**
BBC 25 63-5	Bus bar for CTI 25M-MB, CTI 25S-SB and CTI 16T-20TB (5x63mm)	**047B3273**
BBC 45 54-3	Bus bar for CTI 45MB, CTI 45SB and CTI 32TB (3x54mm)	**047B3274**
BBC 45 54-4	Bus bar for CTI 45MB, CTI 45SB and CTI 32TB (4x54mm)	**047B3275**
BBC 45 63-3	Bus bar for CTI 45MB, CTI 45SB and CTI 32TB (3x63mm)	**047B3276**
BBC 45 63-4	Bus bar for CTI 45MB, CTI 45SB and CTI 32TB (4x63mm)	**047B3277**
	Terminal covers for bus bars BBC 25	**047B3279**
	Terminal covers for bus bars BBC 45	**047B3281**

Ordering

CBI 100-
CBI 100 UI-

CBI 100 UA-
CBI 100 AA-

CBI 100- LK

CBI 100-BDH
CBI 100-RDH

BMP
RMP

Door handle extension

Accessories for circuit breaker CTI 100

Type	Remarks	Code number
CBI 100-20	Auxiliary contact, 2NO (13-14, 23-24), for front mounting	**047B3110**
CBI 100-02	Auxiliary contact, 2NC (11-12, 21-22), for front mounting	**047B3111**
CBI 100-11	Auxiliary contact, 1NO+1NC (13-14, 21-22), for front mounting	**047B3112**
CBI 100 UI-20	Thermal alarm contact (make, 37-38) + Magnetic alarm contact (make, 43-44)	**047B3116**
CBI 100 UI-02	Thermal alarm contact (break, 35-36) + Magnetic alarm contact (break, 41-42)	**047B3117**
CBI 100 UI-11	Thermal alarm contact (break, 35-36) + Magnetic alarm contact (make, 43-44)	**047B3118**
CBI 100 UI2-11	Thermal alarm contact (make, 37-38) + Magnetic alarm contact (break, 41-42)	**047B3119**
CBI 100-UA	CBI 100-UAUnder voltage trip, 24V/50Hz-28V/60Hz, D1-D2, (with 1NO, 43-44)	**047B3123**
CBI 100-UA	Under voltage trip, 110V/50Hz-127V/60Hz, D1-D2, (with 1NO, 43-44)	**047B3124**
CBI 100-UA	Under voltage trip, 220-230V/50Hz-240-260V/60Hz, D1-D2, (with 1NO, 43-44)	**047B3125**
CBI 100-AA	Voltage trip, 24V/50Hz-28V/60Hz, C1-C2, (with 1NO, 43-44)	**047B3130**
CBI 100-AA	Voltage trip, 110V/50Hz-127V/60Hz, C1-C2, (with 1NO, 43-44)	**047B3131**
CBI 100-AA	Voltage trip, 220-230V/50Hz-240-260V/60Hz, C1-C2, (with 1NO, 43-44)	**047B3132**
CBI 100-LK	Black lockable knob for mounting direct on CTI 100	**047B3127**
CBI 100-LK	Red/yellow lockable knob for mounting direct on CTI 100	**047B3129**
CBI 100-BDH	Black lockable door handle for mounting on panel doors IP 66	**047B3133**
CBI 100-RDH	Red/yellow lockable door handle for mounting on panel doors IP 66	**047B3134**
	Door handle extension rod for CBI 100-BDH	**047B3136**

Product description

Enclosures for the circuit breaker range types CTI 25M, CTI 25S and CTI 16T 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 to 25 Amp. full load current can be mounted into the enclosure.

Product properties
- Status indication ON-OFF-TRIP
- For maintenance purposes locking facility up to 3 padlocks
- Sealed cover
- High protection degree IP 65
- 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

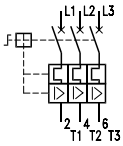
Enclosures for CTI 25M, CTI 25S og CTI 16T

Application	Rotary handle	Cable entries	Code no.	Type
Motor starter/ Main switch	Black/gey	4 M20/25	**047B3284**	BMG
Motor starter/ Emergency switch	Red/grey	4 M20/25	**047B3285**	BMY

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

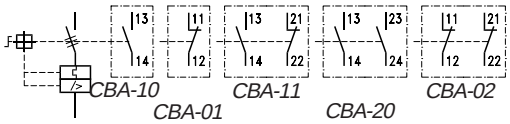
Contact symbols for CTI and accessories

Circuit breakers

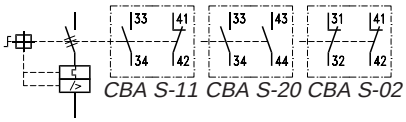


CTI 25M, CTI 25MB, CTI 45MB
CTI 25S, CTI 25SB, CTI 45SB
CTI 16T, CTI 20TB, CTI 32TB

Auxiliary contacts for front mounting

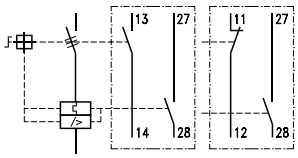


CBA-10 *CBA-11* *CBA-01* *CBA-20* *CBA-02*



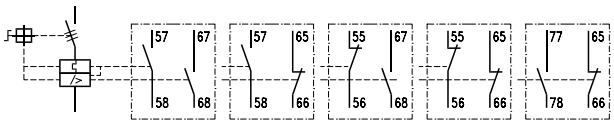
CBA S-11 *CBA S-20* *CBA S-02*

Alarm contacts for front mounting



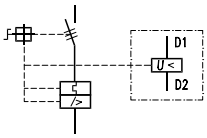
CBT 2TA *CBT 1T-1A*

Alarm contacts for side mounting



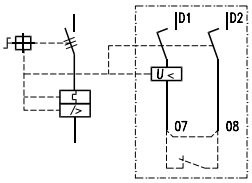
CBT S-2TM *CBT S-1M-1T* *CBT S-1M-1M*
CBT S-1T-1M *CBT S-TM2*

Under voltage trip



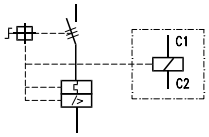
VTU-

Under voltage trip with two early make contacts



VTU 2EM-

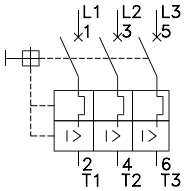
Voltage trip



VT-

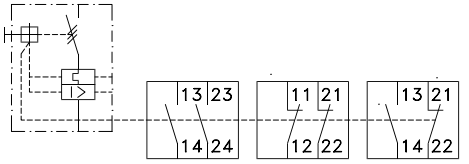
Contact symbols for CTI 100 and accessories

Circuit breaker



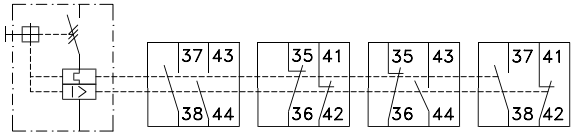
CTI 100

Auxiliary contacts



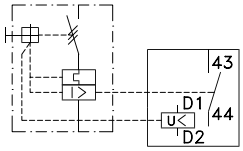
CBI 100-20 *CBI 100-11*
CBI 100-02

Alarm contacts



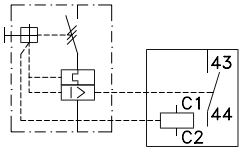
CBI 100 UI-20 *CBI 100 UI-11*
CBI UI-02 *CBI 100 UI2-11*

Under voltage trip



CBI 100-UA

Voltage trip



CBI 100-AA

Approvals

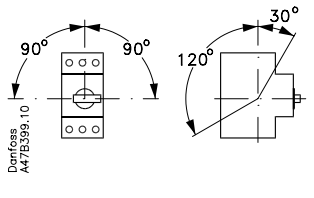
Approval institute / Product type	CE EN60947	A Canada	S USA	UK Lloyds Register of Shipping	Germany Germanischer Lloyd	France Bureau Veritas
CTI 25M	●	●	●	☐	☐	☐
CTI 25MB	●	●	●	☐	☐	☐
CTI 45MB	●	●	●	☐	☐	☐
CTI 25S	●	●	●	☐	❑	❑
CTI 25SB	●	●	●	☐	❑	❑
CTI 45SB	●	●	●	☐	❑	❑
CTI 16T	●	●	●	☐	❑	❑
CTI 20TB	●	●	●	☐	❑	❑
CTI 32TB	●	●	●	☐	❑	❑
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-	●	●	●	●	●	●

● Approved
☐ Approvals applied for

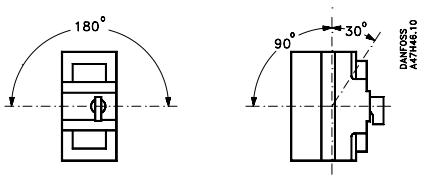
General specifications

Parametre	CTI 25M, CTI 25MB CTI 45MB	CTI 25S,CTI 25SB, CTI 45SB	CTI 16T, CTI 20TB CTI 32TB	CTI 100
Isolation voltage IEC, SEV, VDE 0660 UL, CSA	690V 600V			
Impulse voltage U_{imp}/pollution degree	6kV/3			8kV/3
Rated frequency range	50-60 Hz			40-60 Hz
Ambient temperature Storage Operation Temperature compensation	-40°C ... +80°C -25°C ... +60°C -20°C ... +60°C			
Utilization category	As circuit breaker IEC 947-2 As motor starter IEC 947-4-1			
Overload protection	Motors	None	Transformer	Motors
Trip class	10	None	10	10
Magnetic trip	13 x (max. value of the setting range) CTI 25M, CTI 25MB, CTI 45MB 13 x (max. value of the setting range)CTI 25S, CTI 25SB, CTI 45SB 16...20 x (max. value of the setting range) CTI 16T, CTI 20TB, CTI 32TB			14x (max. value of setting range)
Phase failure protection	Yes	None	Yes	Yes
Mechanical operations	100000 (CTI 45MB, CTI 45SB, CTI 32TB)			30000
Electrical operations	100000 30000 (CTI 45MB, CTI 45SB, CTI 32TB)			10000 5000 (63-90)
Switching frequency	Max 25 operations/hour			20 operations./hour
Resistance to climate change	according to IEC 68-2			
site altitude	2000 m N.N			
Protection class	IP 20			
Resistance to vibration	IEC 68-2			
Resistance to shock	30g, 11 ms		under test	30 g, 11 ms
Life span	0.1...25A	1.6...25A	6.3...45A	40...90A
Total power loss	6-8W	6-8W	9-16W	33W

Mounting direction



CTI 25M, CTI 25MB, CTI 45MB
CTI 25S, CTI 25SB, CTI 45SB
CTI 16T, CTI 20TB, CTI 32TB



CTI 100

Max. motor load

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

Type	Setting	Motor operating voltage – Rated output in kW							
		220-240V		380-415V		500V		690V	
	A	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	-	-	-	11	-	15	18.5	22
CTI 25MB	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	-	-	-	11	-	15	18.5	22
CTI 45MB	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	6.3	-	11	-	15	18.5	22
	23-32	-	7.5	-	15	15	20	22	25
	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

Max. motor load

Circuit breaker for short circuit protection of starter applications
CTI 25S, CTI 25SB, CTI 45SB

Type	Setting	Motor operating voltage – Rated output in kW							
		220-240V		380-415V		500V		690V	
	A	AC-2	AC-3	AC-2	AC-3	AC-2	AC-3	AC-2	AC-2
CTI 25S	0.16	-	-	-	0.02	-	-	-	-
	0.25	-	-	-	0.06	-	-	-	-
	0.4	-	-	-	0.09	-	-	-	-
	0.63	0.06	0.09	0.12	0.18	-	0.18	-	0.25
	1.0	-	0.12	-	0.25	0.25	0.37	0.37	0.55
	1.6	0.18	0.25	0.37	0.55	0.55	0.75	0.75	1.1
	2.5	-	0.37	-	0.75	-	1.1	-	1.8
CTI 25SB	2.5	-	0.37	-	0.75	-	1.1	-	1.8
	4.0	0.55	0.75	1.1	1.5	1.5	2.2	2.2	3
	6.3	1.1	1.5	-	2.2	2.5	3	-	4
	10	-	2.2	3	4	4	6.3	5.5	7.5
	16	3	4	5.5	7.5	7.5	10	11	13
	25	-	-	-	11	-	15	18.5	22
CTI 45SB	25	5.5	6.3	-	11	-	15	18.5	22
	32	-	7.5	-	15	15	20	22	25
	45	11	13	18.5	22	22	30	30	40

Circuit breaker for overload- and short circuit protection of transformer applications
CTI 16T, CTI 20TB, CTI 32TB

Type	Setting	Motor operating voltage – Rated output in kW							
		220-240V		380-415V		500V		690V	
	A	AC-2	AC-3	AC-2	AC-3	AC-2	AC-3	AC-2	AC-2
CTI 16T	0.1-0.16	-	-	-	0.02	-	-	-	-
	0.16-0.25	-	-	-	0.06	-	-	-	-
	0.25-0.4	-	-	-	0.09	-	-	-	-
	0.4-0.63	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
CTI 20TB	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
CTI 32TB	18-25	5.5	6.3	-	11	-	15	18.5	22
	23-32	-	7.5	-	15	15	20	22	25

Accessories for circuit breakers CTI 25M-MB, CTI 25S-SB, CTI 16T-20TB, CTI 45MB-SB-32TB

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

Type	Description	I_{th}		AC-15					DC-13			
		40 °C	60 °C	24V	120V	220-240V	380-415V	690V	24V	120V	240V	415V
		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	-
CBT-	Trip contacts for front mounting	5	4	4	3	1.5	-	-	2	0.5	0.25	0.15
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 I_{th} at 60°C A
BBT 25	Bus bar terminal for CTI 25M, CTI 25S, CTI 16T, CTI 25MB, CTI 25SB, CTI 20TB	63
BBC 25	Bus bar connection for CTI 25M, CTI 25SB, CTI 16T, CTI 25MB, CTI 25SB, CTI 20TB	63
BBT 45	Bus bar terminal for CTI 45MB, CTI 45SB, CTI 32TB	120
BBC 45	Bus bar connection for CTI 45MB, CTI 45SB, CTI 32TB	120

Voltage- and under voltage trip VT-, VTU-, VTU 2EM

Type	Description	Operating voltage range	Coil consumption
VT-	Voltage trip 21 V/50Hz-415V/50Hz 24V/60Hz-480V/60Hz (max 300V UL) *Endurance* 100%	Pull-in 0.85-1.1xU_s Drop-out 0.7-0.35x U_s	Pull-in: 8.5VA, 6W Hold: 3VA, 1.2W
VTU-	Under voltage trip 21 V/50Hz-415V/50Hz 24V/60Hz-480V/60Hz (max 300V UL) *Endurance* 100%	Pull-in 0.85-1.1xU_s Drop-out 0.7-0.35x U_s	Pull-in: 8.5VA, 6W Hold: 3VA, 1.2W
VTU 2EM-	Under voltage trip with two EM contact 21 V/50Hz-415V/50Hz 24V/60Hz-480V/60Hz (max 300V UL) *Endurance* 100%	Pull-in 0.85-1.1xU_s Drop-out 0.7-0.35x U_s	Pull-in: 8.5VA, 6W Hold: 3VA, 1.2W

Accessories for circuit breaker CTI 100

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

Type	Description	I_{th}		AC-15				DC-13			
		40ºC A	60ºC A	220-240V A	380-415V A	500V A	690V A	24V A	48V A	110V A	220V 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_{th}	AC-14					DC-13			
		60ºC A	24V A	110V A	220-240V A	380-415V A	500V A	24V A	48V A	60V A	110V 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	Undervoltage 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 21 V/50Hz-415V/50HzSwitch-in voltage 24V/60Hz-480V/60Hz (max 300V UL) Endurance 100%	Switch-in power: 0.85-1.1xU_s Drop-out voltage 0.7-0.35x U_s3VA, 1.2W	8.5VA, 6W Holding power
CBI 100-UA	Under voltage trip 21 V/50Hz-415V/50HzSwitch-in voltage 24V/60Hz-480V/60Hz (max 300V UL) Endurance 100%	Switch-in power: 0.85-1.1xU_s Drop-out voltage 0.7-0.35x U_s3VA, 1.2W	8.5VA, 6W Holding power

Terminals

Type	Comments	Recommended screwdriver size mm²	Solid wire mm²	Stranded wire mm²	Stranded wire with sleeve Nm	Tightening torque
CTI 25M	1 conductor or 2 conductors	Pozi 2/ blade 3	1.5-6	1-6	1-4	1-2.5
CTI 25MB	1 conductor or 2 conductors	Pozi 2/ blade 3	1.5-6	1-6	1-4	1-2.5
CTI 25S	1 conductor or 2 conductors	Pozi 2/ blade 3	1.5-6	1-6	1-4	1-2.5
CTI 25SB	1 conductor or 2 conductors	Pozi 2/ blade 3	1.5-6	1-6	1-4	1-2.5
CTI 16T	1 conductor or 2 conductors	Pozi 2/ blade 3	1.5-6	1-6	1-4	1-2.5
CTI 20TB	1 conductor or 2 conductors	Pozi 2/ blade 3	2.5-25	2.5-25	2.5-16	1.5-3.5
CTI 45 MB	1 conductor	Pozi 2/blade 4	2.5-25	2.5-25	2.5-16	1.5-3.5
CTI 45MB	2 conductors	Pozi 2/ blade 4	2.5-16	2.5-16	2.5-10	1.5-3.5
CTI 45SB	1 conductor	Pozi 2/ blade 4	2.5-25	2.5-25	2.5-16	1.5-3.5
CTI 45SB	2 conductors	Pozi 2/ blade 4	2.5-16	2.5-16	2.5-10	1.5-3.5
CTI 32TB	1 conductor	Pozi 2/ blade 4	2.5-25	2.5-25	2.5-16	1.5-3.5
CTI 32TB	2 conductors	Pozi 2/ blade 4	2.5-16	2.5-16	2.5-10	1.5-3.5
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-	1 conductor or 2 conductor s	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

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 typical 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)

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 circuitbreaking 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-currentis determent 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.
gI fuse	Indicates full short circuit protection at voltages 250V, 400V, 500V and 690V.
gL fuse	Indicates full shoert circuit protection of wires.
gG fuse	Indicates full short circuit protection at general applications. (Will replace gI- and gL –fuses)
T fuse	Description of an English standard fuse.
BS 88	British Standard for smeltesikringer

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

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

Type	Setting A	220-240 V A	380-415V A	440-460V A	500V A	690V 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
CTI 25MB	1.6-2.5					20
	2.5-4.0					35
	4.0-6.3					50
	6.3-10					50
	10-16			80	80	63
	14.5-20		100	100	80	63
	18-25		100	100	80	63
CTI 45MB	6.3-10		80	80	80	63
	10-16		100	100	100	80
	14.5-20		100	100	100	80
	18-25		100	100	125	80
	23-32		125	125	125	100
	32-45		125	125	125	100
CTI 100	40-63		160	160	160	160
	63-90		160	160	160	160

No fuse required

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

Type	Setting A	220-240 V A	380-415V A	440-460V A	500V A	690V A
CTI 25S	0.16					
	0.25					
	0.40					
	0.63					
	1.0					
	1.6					16
	2.5					20
CTI 25SB	2.5					20
	4.0					35
	6.3					50
	10					50
	16			80	80	63
	25		100	100	80	63
CTI 45SB	25		100	100	125	63
	32		125	125	125	100
	45		125	125	125	100

No fuse required

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

Type	Setting A	220-240 V A	380-415V A	440-460V A	500V A	690V A
CTI 16T	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
CTI 20TB	10-16		80	80	80	63
	14.5-20		100	100	80	63
CTI 32TB	18-25		100	100	100	80
	23-32		125	125	125	100

No fuse required

Circuit breaker for motor applications

Type	Thermal setting range A	Magnetic Trip current A	Breaking capacity in kA									
			220-240V		380-415V		440-460V		500V		690V	
			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	50	50	10	6	10	6	3	3
	14.5-20	260	50	50	15	15	10	6	6	6	3	3
	18-25	325	50	50	15	15	10	6	6	6	3	3
CTI 25MB	1.6-2.5	33	100	100	100	100	100	100	100	100	10	10
	2.5-4.0	52	100	100	100	100	100	100	100	100	10	10
	4.0-6.3	82	100	100	100	100	100	100	100	100	10	10
	6.3-10	130	100	100	100	100	100	100	100	100	6	6
	10-16	208	100	100	100	50	65	50	50	50	6	4
	14.5-20	260	100	100	65	25	65	25	50	25	6	4
	18-25	325	100	100	65	25	65	25	50	25	6	4
CTI 45MB	6.3-10	130	100	100	65	50	65	50	50	50	10	6
	10-16	208	100	100	65	50	65	50	50	50	10	6
	14.5-20	260	100	100	65	25	65	50	50	50	10	6
	18-25	325	100	100	65	50	65	50	50	50	10	6
	23-32	416	100	100	65	50	65	50	50	50	10	6
	32-45	585	100	100	65	50	50	50	50	50	10	6
CTI 100	40-63	882	100	100	65	50	30	25	30	25	8	6
	63-90	1260	100	100	50	25	25	13	25	13	6	6

Circuit breakers for starter applications

Type	Max. load A	Magnetic Trip current A	Breaking capacity in kA									
			220-240V		380-415V		440-460V		500V		690V	
			I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
CTI 25S	0.16	2.1	100	100	100	100	100	100	100	100	100	100
	0.25	3.3	100	100	100	100	100	100	100	100	100	100
	0.40	5.2	100	100	100	100	100	100	100	100	100	100
	0.63	8.2	100	100	100	100	100	100	100	100	100	100
	1.0	13	100	100	100	100	100	100	100	100	100	100
	1.6	21	100	100	100	100	100	100	100	100	10	8
	2.5	32	100	100	100	100	100	100	100	100	8	8
CTI 25SB	2.5	32	100	100	100	100	100	100	100	100	10	10
	4.0	52	100	100	100	100	100	100	100	100	10	10
	6.3	82	100	100	100	100	100	100	100	100	10	10
	10	130	100	100	100	100	100	100	100	100	6	6
	16	208	100	100	100	100	65	50	50	50	6	4
	25	325	100	100	50	25	50	25	50	25	6	4
CTI 45SB	25	325	100	100	65	50	65	50	50	50	10	10
	32	416	100	100	65	50	65	50	50	50	10	6
	45	585	100	100	65	50	50	50	50	50	10	6

Circuit breakers for transformer applications

Type	Thermal setting range A	Magnetic Trip current A	Breaking capacity in kA									
			220-240V		380-415V		440-460V		500V		690V	
			I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
CTI 16T	0.1-0.16	3.2	100	100	100	100	100	100	100	100	100	100
	0.16-0.25	5.2	100	100	100	100	100	100	100	100	100	100
	0.25-0.40	8.2	100	100	100	100	100	100	100	100	100	100
	0.40-0.63	13	100	100	100	100	100	100	100	100	100	100
	0.63-1.0	21	100	100	100	100	100	100	100	100	100	100
	1.0-1.6	32	100	100	100	100	100	100	100	100	8	8
	1.6-2.5	52	100	100	100	100	100	100	100	100	8	8
	2.5-4.0	82	100	100	100	100	100	100	100	100	8	8
	4.0-6.3	130	100	100	100	100	100	100	100	100	4	4
	6.3-10	208	100	100	100	100	65	50	50	50	4	4
	10-16	260	100	100	50	15	10	6	10	6	3	3
CTI 20TB	10-16	260	100	100	65	25	65	25	50	25	6	4
	14.5-20	325	100	100	65	25	65	25	50	25	6	4
CTI 32TB	18-25	416	100	100	65	50	65	50	50	50	10	10
	23-32	585	100	100	65	50	65	50	50	50	10	6

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	10A
CBT-	Alarm contacts for front mounting	B300	Q300	
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 25MB	1 conductor or 2 conductors	Pozi 2/ blade 3	No. 16-8	No. 16-8	No. 16-12	8.9-22
CTI 25S	1 conductor or 2 conductors	Pozi 2/ blade 3	No. 16-8	No. 16-8	No. 16-12	8.9-22
CTI 25SB	1 conductor or 2 conductors	Pozi 2/ blade 3	No. 16-8	No. 16-8	No. 16-12	8.9-22
CTI 16T	1 conductor or 2 conductors	Pozi 2/ blade 3	No. 16-8	No. 16-8	No. 16-12	8.9-22
CTI 20TB	1 conductor or 2 conductors	Pozi 2/ blade 3	No. 16-8	No. 16-8	No. 16-12	8.9-22
CTI 45 MB	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
CTI 45SB	1 conductor	Pozi 2/ blade 4	No. 14-6	No. 14-6	No. 14-8	13-31
CTI 45SB	2 conductors	Pozi 2/ blade 4	No. 14-4	No. 14-4	No. 14-6	13-31
CTI 32TB	1 conductor	Pozi 2/ blade 4	No. 14-6	No. 14-6	No. 14-8	13-31
CTI 32TB	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-	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	Motor rating in hp							
		1-phase run		3-phase run			Prospective short circuit current kA		Protection device Max. current
	A	115V	230V	230V	460V	575V	480V	600V	A
CTI 25M	0.1-0.16	-	-	-	-	-	65	47	400
	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	5	
	2.5-4.0	1/8	1/3	3/4	2	3	65	5	
	4.0-6.3	1/4	1/2	1½	3	5	65	5	
	6.3-10	1/2	1	3	5	7½	65	5	
	10-16	3/4	2	5	10	10	10	5	
	14-5-20	1	3	5	-	15	10	5	
	18-25	1½	-	7½	15	20	10	5	
CTI 25MB	1.6-2.5	-	1/6	1/2	1	1½	65	10	400
	2.5-4.0	1/8	1/3	3/4	2	3	65	10	
	4.0-6.3	1/4	1/2	1½	3	5	65	10	
	6.3-10	1/2	1	3	5	7½	65	10	
	10-16	3/4	2	5	10	10	65	10	
	14-5-20	1	3	5	-	15	65	5	
	18-25	1½	-	7½	15	20	65	5	
CTI 45MB	6.3-10	1/2	1	3	5	7½	65	10	500
	10-16	3/4	2	5	10	10	65	10	
	14-5-20	1	3	5	-	15	65	10	
	18-25	1½	-	7½	15	20	65	10	
	23-32	2	5	10	20	25	65	10	
	32-45	3	7½	15	30	40	65	10	
CTI 100	40-63	5	12	22	45	60	65	42	
	63-90	7.2	20	30	70	85	65	30	

UL/CSA specifications

Circuit breakers for short circuit protection of contactor applications

Type	Setting	Motor rating in hp							
		1-phase run		3-phase run			Prospective short circuit current kA		Protection device Max. current
	A	115V	230V	230V	460V	575V	480V	600V	A
CTI 25S	0.16	-	-	-	-	-	65	47	400
	0.25	-	-	-	-	-	65	47	
	0.4	-	-	-	-	-	65	47	
	0.63	-	-	-	-	-	65	47	
	1.0	-	-	-	-	1/2	65	47	
	1.6	-	1/10	-	3/4	3/4	65	47	
	2.5	-	1/6	1/2	1	1½	65	5	
CTI 25SB	2.5	-	1/6	1/2	1	1½	65	10	400
	4.0	1/8	1/3	3/4	2	3	65	10	
	6.3	1/4	1/2	1½	3	5	65	10	
	10	1/2	1	3	5	7½	65	10	
	16	3/4	2	5	10	10	65	10	
	25	1½	-	7½	15	20	65	5	
CTI 45SB	25	1½	-	7½	15	20	65	10	500
	32	2	5	10	20	25	65	10	
	45	3	7½	15	30	40	65	10	

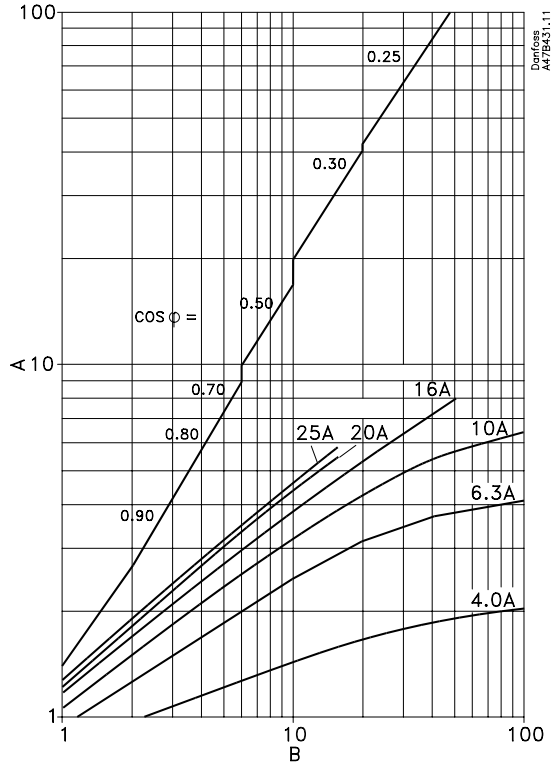
Under test

Circuit breakers for overload- and short circuit protection of transformer applications

Type	Setting	Motor rating in hp							
		1-phase run		3-phase run			Prospective short circuit current kA		Protection device Max. current
	A	115V	230V	230V	460V	575V	480V	600V	A
CTI 16T	0.1-0.16	-	-	-	-	-	65	47	400
	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	5	
	2.5-4.0	1/8	1/3	3/4	2	3	65	5	
	4.0-6.3	1/4	1/2	1½	3	5	65	5	
	6.3-10	1/2	1	3	5	7½	65	5	
	10-16	3/4	2	5	10	10	10	5	
CTI 20TB	10-16	3/4	2	5	10	10	65	10	400
	14-5-20	1	3	5	-	15	65	5	
CTI 32TB	18-25	1½	-	7½	15	20	65	10	500
	23-32	2	5	10	20	25	65	10	

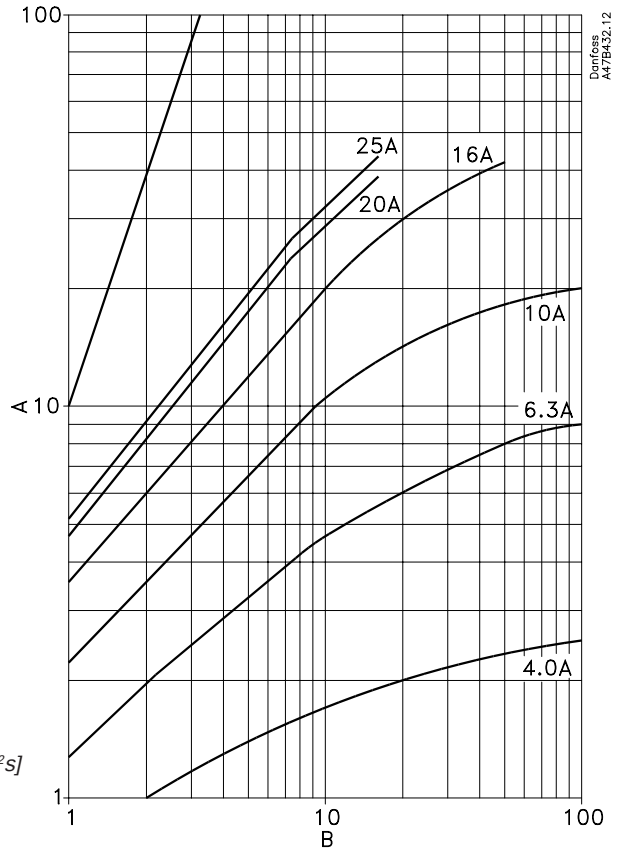
Let-through curves for circuit breakers CTI 25M, CTI 25S, CTI 16T

Max let-through current for circuit breakers CTI 25M, CTI 25S, CTI 16T



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

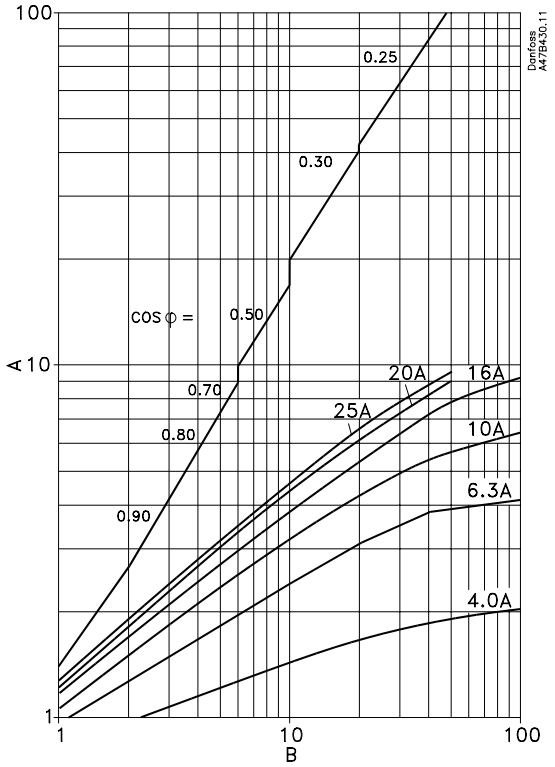
Max let-through energi for circuit breakers CTI 25M, CTI 25S, CTI 16T



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

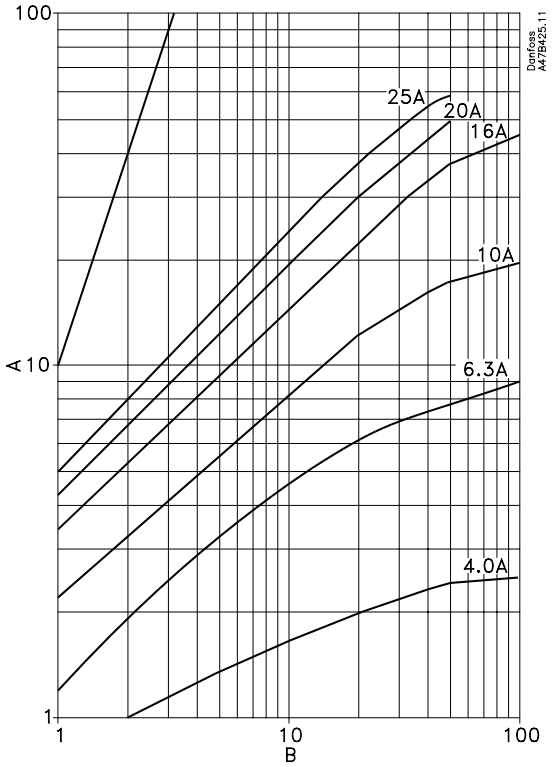
Let-through curves for circuit breakers CTI 25MB, CTI 25SB, CTI 20TB

Max let-through current for circuit breaker for circuit breakers CTI 25MB, CTI 25SB, CTI 20TB



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

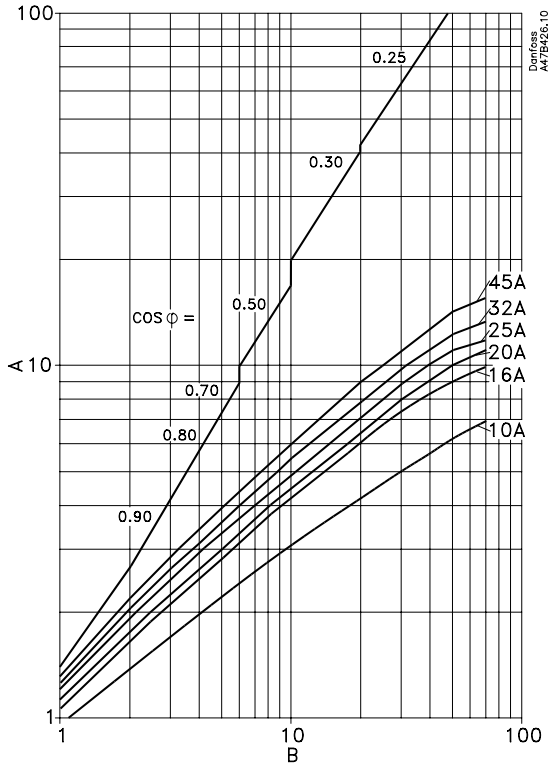
Max let-through energy for circuit breakers CTI 25MB, CTI 25SB, CTI 20TB



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

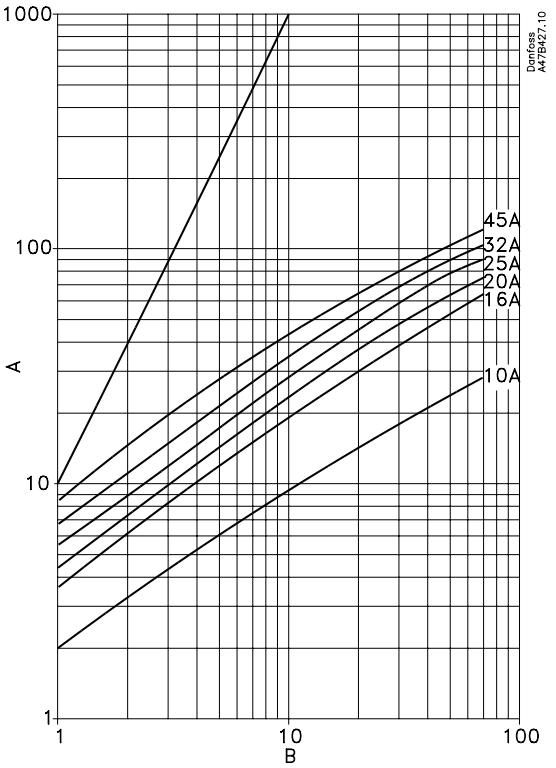
Let-through curves for circuit breakers CTI 45MB, CTI 45SB, CTI 32TB

Max let-through current for circuit breakers *CTI 45MB, CTI 45SB, CTI 32TB*



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

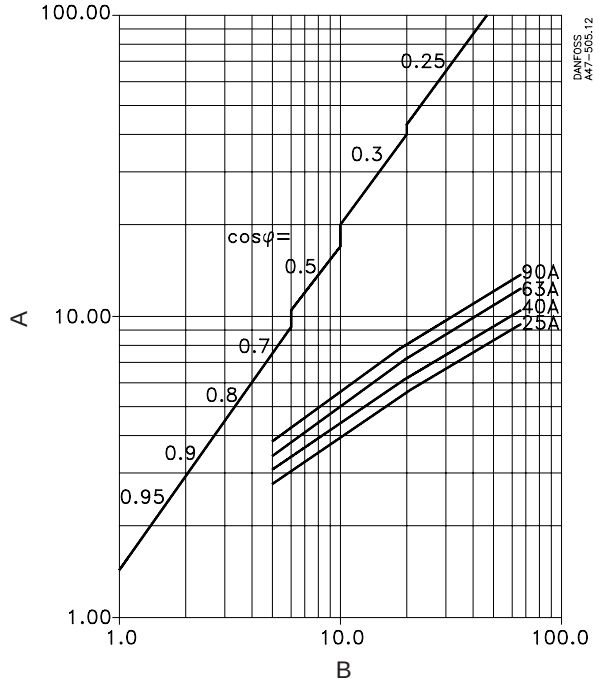
Max let-through energy for circuit breakers CTI 45MB, CTI 45SB, CTI 32TB



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

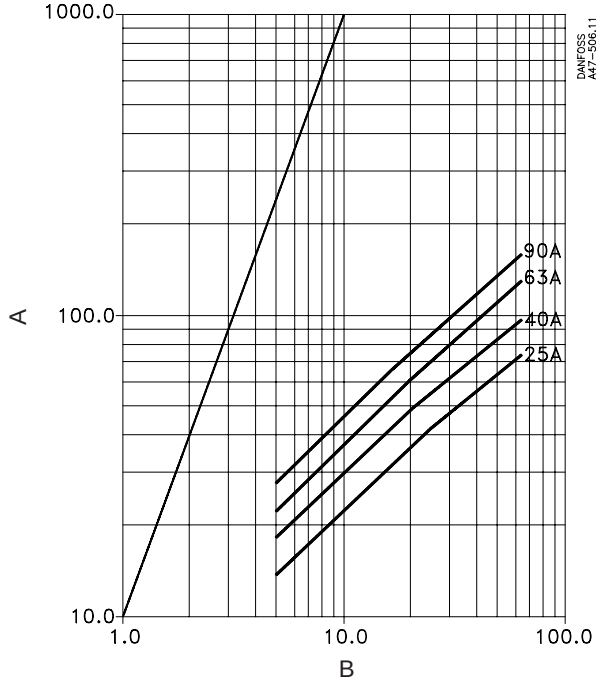
Let-through curves for circuit breakers CTI 100

Max let-through current for circuit breaker CTI 100



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

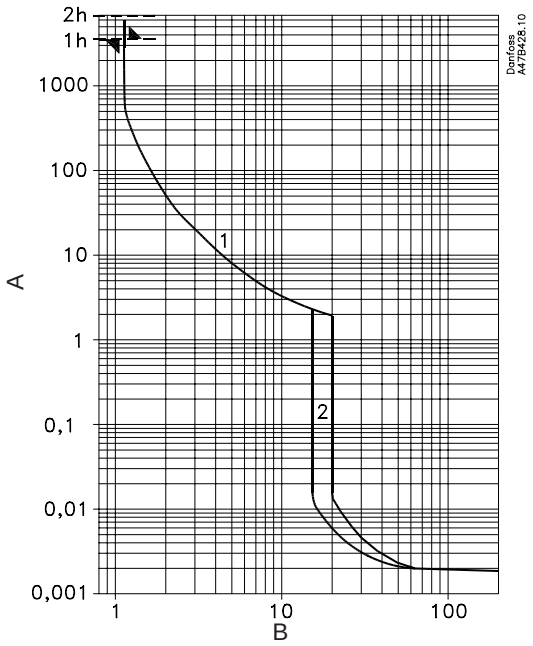
Max let-through energy for circuit breaker CTI 100



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

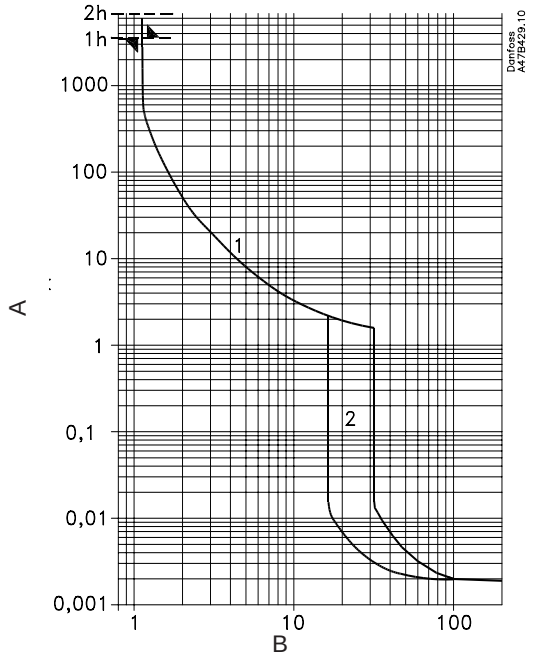
Overload protection of motors

Tripping characteristic for CTI 25M, CTI 25MB



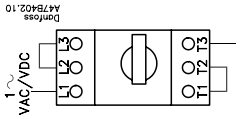
A: Trip time in sec.
B: Times the adjustable current I_{ef}

Tripping characteristic for CTI 16T, CTI 20TB



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

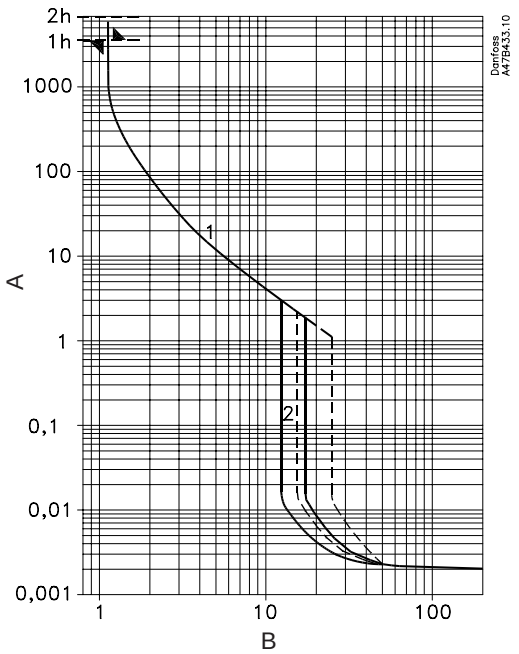
1) *Thermal trip*
The adjustable bimetals ensure a reliable overload protection of motors. The curve is mean value curve at 20 ^{0}C ambient temperature from cold state. It also ensures protection of motors by phase failure (differential trip).
All three bimetals must be connected in series by overload 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 typical to 13 times of the maximum range of the circuit breakers CTI 25M, CTI 25MB, CTI 45MB, CTI 25S, CTI 25SB and CTI 45SB. For circuit breakers CTI 16T, CTI 20TB and CTI 32TB correspond the fixed response current typical from 16 to 20 times the maximum range of the circuit breakers.

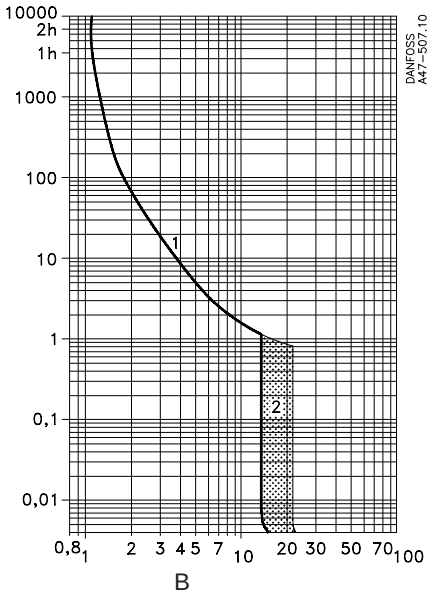
Overbelastningsbeskyttelse af motorer

Tripping characteristic for CTI 45MB, CTI 32TB



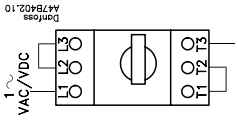
A: Trip times in sec.
B: Times the adjustbale current I_{ef}
CTI 32TB - - - -

Tripping characteristic for CTI 100



A: Trip times in sec.
B: Times the adjustbale current I_{ef}

1) Thermal trip
The adjustable bimetals ensure a reliable overload protection of motors. The curve is mean value curve at 20 ^{0}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.

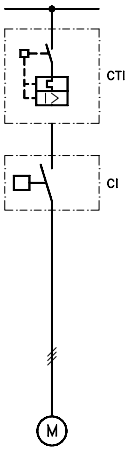


2) Magnetic trip
The electromagnetic trips react at a fixed response current. The size of the fixed response current correspond typical to 13 times of the maximum range of the circuit breakers CTI 25M, CTI 25MB, CTI 45MB, CTI 25S, CTI 25SB and CTI 45SB. For circuit breakers CTI 16T, CTI 20TB and CTI 32TB correspond the fixed response current typical from 16 to 20 times the maximum range of the circuit breakers.

Coordination without fuse

Circuit breakers and contactors

Max. prospective short circuit-current I_q = 50 kA
Voltage 380-415 V/50 Hz
Overload protection CTI 25M-MB, CTI 16T-20TB, CTI 45MB-32TB, CTI 100
Short-circuit protection CTI 25M-MB, CTI 16T-20TB, CTI 45MB-32TB, CTI 100, CTI 25 S-SB, CTI 45SB
Short-circuit coordination T1 and T2



Contactor	Coordination type 1		Coordination type 2	
	I_r [1] and I_q = 50 kA		I_r [1] and I_q = 50 kA	
	CTI 25M CTI 25MB	CTI 45MB CTI 100	CTI 25 M	CTI 25MB CTI 45MB CTI 100
	Max. CTI range (A)			
CI 4-2, CI 4-5, CI 4-9, CI 4-12	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

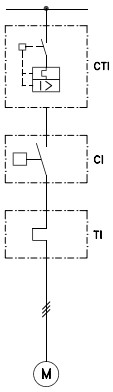
[1] Short-circuit current according to EN60947-4 (see page 19)

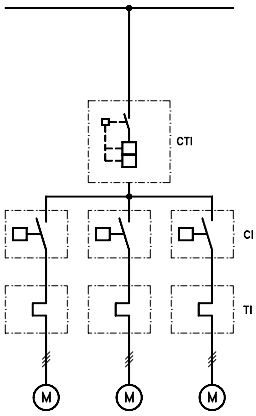
Contactor	Coordination type 1		Coordination type 2	
	I_r [1] and I_q = 50 kA		I_r [1] and I_q = 50 kA	
	CTI 16T CTI 20TB	CTI 32TB	CTI 16T	CTI 20TB CTI 32TB
	Max. CTI range (A)			
CI 4-2, CI 4-5, CI 4-9, CI 4-12	16	32	2.5	-
CI 6, CI 9	16	32	2.5	-
CI 12, CI 15	16	32	2.5	-
CI 16	16	32	6.3	-
CI 20, CI 25	20	32	6.3	-
CI 30	-	32	10	16
CI 32	-	32	-	32
CI 37, CI 45, CI 50	-	-	-	32

[1] Short-circuit test current according to EN60947-4 (see page 19)

Circuit breakers, contactors and thermal overload relays

Max. prospective short-circuit current I_q = 50 kA
Voltage 380-415 V/50 Hz
Overload protection Thermal overload relay type TI 9C, TI 16C, TI 25C, TI 30C, TI 80
Short-circuit protection CTI 25M-MB, CTI 16T-20TB, CTI 45MB-32TB CTI 25S-SB, CTI 45SB, CTI 100
Short-circuit coordination T1

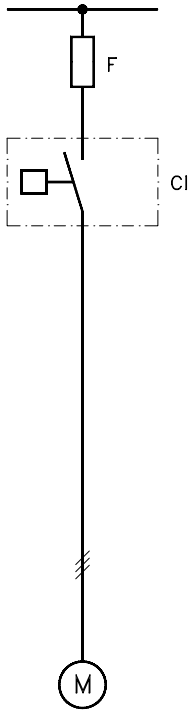




Contactor	Thermal overload relay range (A)	Coordination type T1 Test current I_r [1] and I_q = 50 kA Max. CTI range (A)
CI 4-5, CI 4-9, CI 6, CI 9	0.13 - 0.20	45A
CI 4-5, CI 4-9, CI 6, CI 9	0.19 - 0.29	
CI 4-5, CI 4-9, CI 6, CI 9	0.27 - 0.42	
CI 4-5, CI 4-9, CI 6, CI 9	0.4 - 0.62	
CI 4-5, CI 4-9, CI 6, CI 9	0.6 - 0.92	
CI 4-5, CI 4-9, CI 6, CI 9	0.85 - 1.3	
CI 4-5, CI 4-9, CI 6, CI 9	1.2 - 1.9	63A
CI 4-5, CI 4-9, CI 6, CI 9	1.8 - 2.8	
CI 4-5, CI 4-9, CI 6, CI 9	2.7 - 4.2	
CI 4-5, CI 4-9, CI 6, CI 9	4 - 6.2	
CI 4-9, CI 9	6 - 9.2	
CI 4-12, CI 12, CI 15	8 - 12	
CI 15, CI 16	11 - 16	90A
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 /3	60 - 80	
CI 86	74 - 85	

[1] Short-circuit current according to EN60947-4 (see page 19)

Coordination with fuse



Contactors

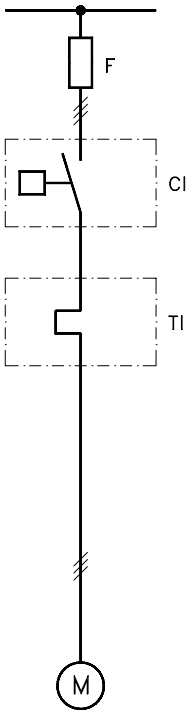
Max. prospective short-circuit current I_q = 50 kA
Voltage 380-415 V/50 Hz
Overload/short-circuit protection gG and T (BS88)
Short-circuit coordination T1 and T2

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 4-2, CI 4-5, CI 4-9, CI 4-12	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 105	250	-	-	-	200	-
CI 141	315	-	-	-	250	-
CC 170 EI	355	-	-	-	315	-
CI 210 EI, CI 250 EI	500	-	-	-	400	-
CI 300 EI, CI 420 EI	630	-	-	-	500	-

[1] Short-circuit current according to EN60947-4 (see page 19)

Contactors and thermal overload relays

Max. prospective short-circuit current I_q = 50 kA
Voltage 380-415 V/50 Hz
Overload/short-circuit protection gG and T (BS88)
Short-circuit coordination T1 and T2

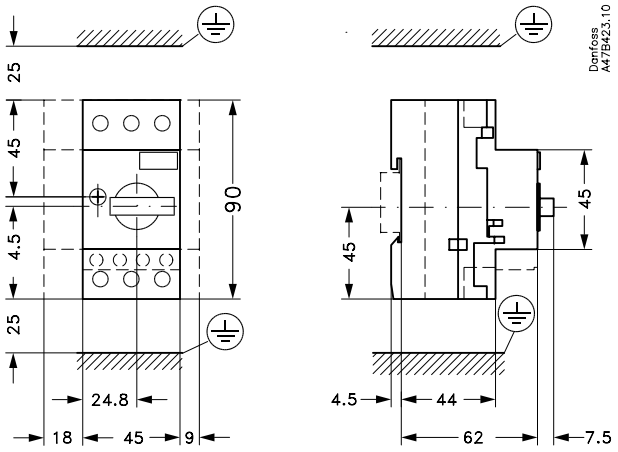


Contactor	Thermal overload relay	Short-circuit coordination					
		T1		T2			
				Test current			
		I_r [1] and I_q = 50 kA		I_r [1] and I_q = 10 kA		I_r [1] and I_q = 50 kA	
	A	gG A	T A	gG A	T A	gG A	T A
CI 4-5, CI 4-9, CI 6, CI 9	0.13 - 0.20	25	32	2	2	-	-
CI 4-5, CI 4-9, CI 6, CI 9	0.19 - 0.29	25	32	2	2	-	2
CI 4-5, CI 4-9, CI 6, CI 9	0.27 - 0.42	25	32	2	2	2	2
CI 4-5, CI 4-9, CI 6, CI 9	0.4 - 0.62	25	32	4	4	4	4
CI 4-5, CI 4-9, CI 6, CI 9	0.6 - 0.92	25	32	4	6	4	6
CI 4-5, CI 4-9, CI 6, CI 9	0.85 - 1.3	25	32	4	6	4	6
CI 4-5, CI 4-9, CI 6, CI 9	1.2 - 1.9	25	32	6	10	6	10
CI 4-5, CI 4-9, CI 6, CI 9	1.8 - 2.8	25	32	6	10	6	10
CI 4-5, CI 4-9, CI 6, CI 9	2.7 - 4.2	25	32	16	20	16	20
CI 4-5, CI 4-9, CI 6, CI 9	4 - 6.2	35	40	20	25	20	25
CI 4-5, CI 4-9, CI 6, CI 9	6 - 9.2	50	50	20	25	20	25
CI 4-12, 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 105	20 - 180	250	-	-	-	200	-
CI 141	20 - 180	315	-	-	-	250	-
CI 170 EI	20 - 180	355	-	-	-	315	-
CI 210 EI, CI 250 EI	160 - 630	500	-	-	-	400	-
CI 300 EI, CI 420	160 - 630	630	-	-	-	500	-

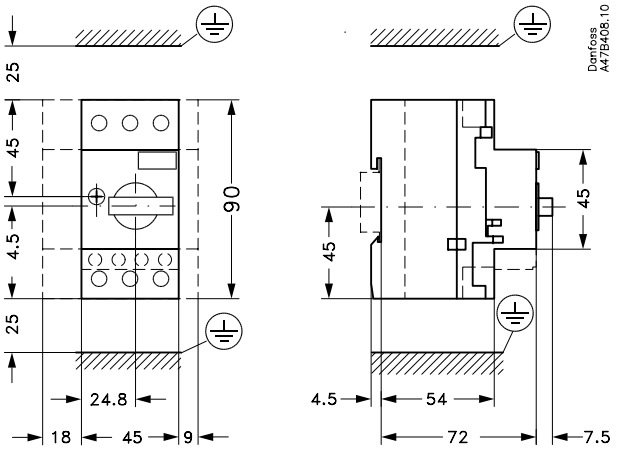
[1] Short-circuit test current according to EN60947-4 (see page 19)

Dimensions

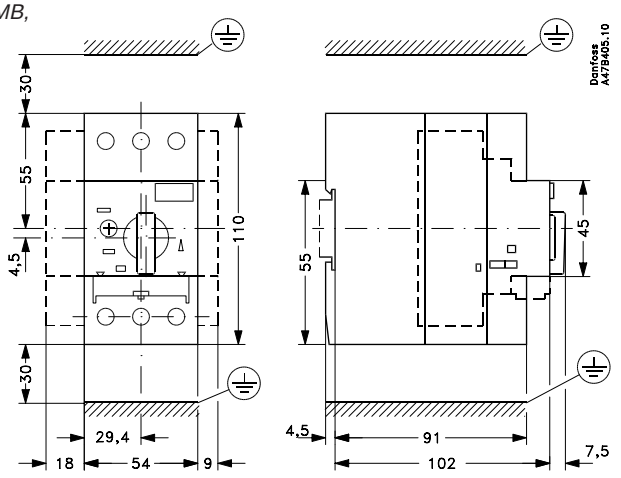
Circuit breakers CTI 25M, CTI 25S, CTI 16T



Circuit breakers CTI 25MB, CTI 25SB, CTI 20TB

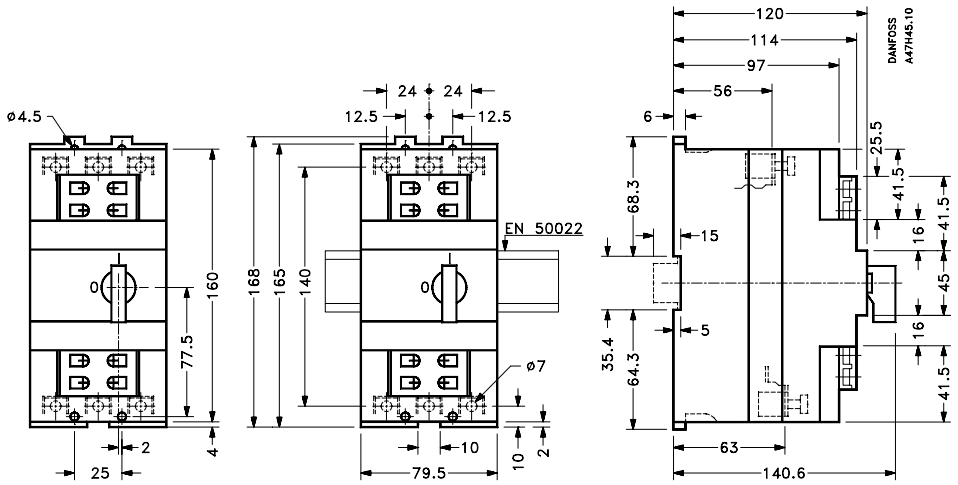


Circuit breakers CTI 45MB, CTI 45SB, CTI 32TB



Dimensions

Circuit breakers CTI 100



Enclosures BMG and BMY for circuit breakers CTI 25M, CTI 25S and CTI 16T