

Technical Data for Designers

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TeSys GV2

0.06 to 15 kW



Circuit
breakers

Characteristics - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

Magnetic motor circuit breakers GV2

Environment			GV2L	GV2LE	GV2ME	GV2P	GV2RT
Circuit breaker type							
Conforming to standards			IEC/EN 60947-4-1, IEC/EN 60947-2				
Product certifications			CSA C22.2 n°60947-4-1 ⁽¹⁾				
Climatic withstand			According to IACS E10				
Degree of protection (front face)	Conforming to IEC 60529	Open mounted	Against direct finger contact: IP20				
		In enclosure	IP65 with GV2PC01 GV2PC02 enclosure	-	IP41 with GV2M●01 IP55 with GV2M●02 enclosure	IP 65 with GV2PC01 GV2PC02 enclosure	-
Shock resistance	Conforming to IEC 60068-2-27		30 gn - 11 ms				
Vibration resistance	Conforming to IEC 60068-2-6		5 gn (5 to 150 Hz)				
Ambient air temperature	Storage		°C -40...+80				
	Operation	Open mounted	°C -20...+60				
		In enclosure	°C -20...+40				
Temperature compensation		Open mounted	°C -20...+60				
		In enclosure	°C -20...+40				
Flame resistance	Conforming to IEC 60695-2-11		°C 960				
Maximum operating altitude			m 2000				
Suitable for isolation	Conforming to IEC 60947-1 § 7-1-6		Yes				
Resistance to mechanical impact			J 0.5				
			IK04				
Sensitivity to phase failure			Yes, conforming to IEC 60947-4-1 § 8-2-1-5-2 for GV2ME & GV2P				

Technical characteristics			GV2L	GV2LE	GV2ME	GV2P	GV2RT
Circuit breaker type							
Utilisation category	Conforming to IEC 60947-2		A				
	Conforming to IEC 60947-4-1		AC-3				
Rated operational voltage (Ue)	Conforming to IEC 60947-2	V	690				
Rated insulation voltage (Ui)	Conforming to IEC 60947-2	V	690				
Rated voltage	Conforming to UL 60947-4-1	V	-	-	600	600	600
	CSA C 22.2 n° 60947-4-1		480	480	600	600	600
Rated operational frequency	Conforming to IEC 60947-4-1 UL, CSA	Hz	50/60				
Rated impulse withstand voltage (U imp)	Conforming to IEC 60947-2	kV	6				
Total power dissipated per pole		W	1.8		2.5		
Mechanical durability (C.O.: Closing, Opening)		C.O.	100 000				
Electrical durability for AC-3/415V duty (C.O.: Closing, Opening)	415 V In	C.O.	100 000				
Duty class (maximum operating rate)		C.O./h	40		25		
Maximum conventional rated thermal current (Ith)	Conforming to IEC 60947-4-1	A	0.4...32	0.4...32	0.16...32	0.16...32	0.40...23
Rated duty	Conforming to IEC 60947-4-1		Continuous duty				

(1) GV2L03 to GV2L22, GV2LE03 to GV2LE22.

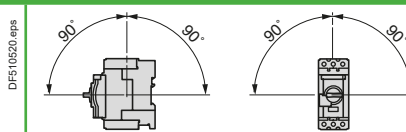
(2) UL 60947-4-1 type E for GV2P●● (except 32 A).

Characteristics - TeSys GV2 - 0.06 to 15 kW

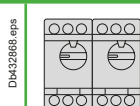
TeSys protection components Magnetic motor circuit breakers GV2

Mounting characteristics

Operating position
Without derating, in relation to normal vertical mounting plane ⁽¹⁾



Products side by side



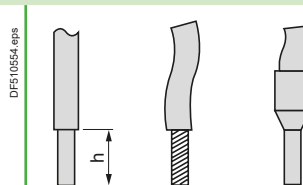
When several products **GV2ME●●**, **GV2P●●**, **GV2RT●●** are mounted side by side, the thermal trip setting I_r maybe need to be adjusted up to 1.1xIn.

Do not exceed the maximum thermal setting I_r .
E.g: **GV2ME14**, thermal setting range: 6...10, do not adjust I_r above 10 A.

Connection characteristics

Connection to screw clamp terminals or spring terminals

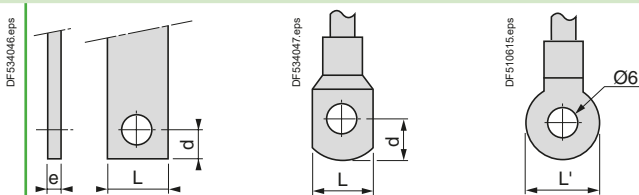
Bare cables



Circuit breaker type			GV2L		GV2LE		GV2ME		GV2P		GV2RT	
Connection to screw clamp terminals (Max. number of conductors x c.s.a.)		mm ²	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Solid cable		mm ²	2 x 1	2 x 6	2 x 1	2 x 6	2 x 1	2 x 6	2 x 1	2 x 6	2 x 1	2 x 6
Flexible cable without cable end		mm ²	2 x 1.5	2 x 6	2 x 1.5	2 x 6	2 x 1.5	2 x 6	2 x 1.5	2 x 6	2 x 1.5	2 x 6
Flexible cable with cable end		mm ²	2 x 1	2 x 4	2 x 1	2 x 4	2 x 1	2 x 4	2 x 1	2 x 4	2 x 1	2 x 4
Tightening torque		N.m	1.7									
Connection to spring terminals		mm ²	-	-	-	-	2 x 1 ⁽²⁾	2 x 6	-	-	-	-
Number of conductors x c.s.a.		mm ²	-	-	-	-	2 x 1.5 ⁽²⁾	2 x 4	-	-	-	-

Connection by bars or lugs

Bars or lugs



Circuit breaker type			GV2ME●●6	
Pitch	Without spreaders	mm	13.5	
	With spreaders	mm	-	
Bars or cables with lugs	e	mm	≤ 6	
	L	mm	≤ 9.5	
	L'	mm	≤ 9.5	
	d	mm	≤ 10	
Screws			M4	
	Tightening torque	N.m	1.7	
Bare cables (copper or aluminium) with connectors	Height (h)	mm	-	
	C.s.a.	mm ²	-	
	Tightening torque	N.m	-	

⁽¹⁾ When mounting on a vertical rail, fit a stop to prevent any slippage.

⁽²⁾ For cross-sections 1 to 1.5 mm², the use of an **LA9D99** cable end reducer is recommended.

Characteristics - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

Magnetic motor circuit breakers GV2L and GV2LE

Breaking capacity of GV2L and GV2LE																						
Circuit breaker type			GV2LE										GV2L									
			03 to 06	07	08	10	14	16	20	22	32	03 to 05	06 & 07	08	10	14	16	20	22	32		
Rating		A	0.4 to 1.6	2.5	4	6.3	10	14	18	25	32	0.4 to 1	1.6 to 2.5	4	6.3	10	14	18	25	32		
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	*	*	*	*	*	*	50	50	*	*	*	*	*	*	*	50	50		
		Ics % ⁽¹⁾		*	*	*	*	*	*	100	100	*	*	*	*	*	*	*	100	100		
	400/415 V	Icu	kA	*	*	*	*	*	15	15	15	10	*	*	*	*	*	50	50	50	50	
		Ics % ⁽¹⁾		*	*	*	*	*	50	50	40	50	*	*	*	*	*	50	50	50	50	
	440 V	Icu	kA	*	*	*	50	15	8	8	6	6	*	*	*	*	*	20	20	20	20	
		Ics % ⁽¹⁾		*	*	*	100	100	50	50	50	50	*	*	*	*	*	75	75	75	75	
	500 V	Icu	kA	*	*	*	50	10	6	6	4	4	*	*	*	*	*	10	10	10	10	
		Ics % ⁽¹⁾		*	*	*	100	100	75	75	75	75	*	*	*	*	*	100	75	75	75	
	690 V	Icu	kA	*	3	3	3	3	3	3	3	3	*	4	4	4	4	4	4	4	4	
		Ics % ⁽¹⁾		*	75	75	75	75	75	75	75	75	*	100	100	100	100	100	100	100	100	
Associated fuses (if required) if Ics > breaking capacity Icu conforming to IEC 60947-2 amendment 1	230/240 V	aM	A	*	*	*	*	*	*	80	80	*	*	*	*	*	*	*	100	100		
		gG	A	*	*	*	*	*	*	100	100	*	*	*	*	*	*	*	125	125		
	400/415 V	aM	A	*	*	*	*	*	63	63	80	80	*	*	*	*	*	80	100	100	100	
		gG	A	*	*	*	*	*	80	80	100	100	*	*	*	*	*	100	125	125	125	
	440 V	aM	A	*	*	*	50	50	50	50	63	63	*	*	*	*	*	50	63	80	80	
		gG	A	*	*	*	63	63	63	63	80	80	*	*	*	*	*	63	80	100	100	
	500 V	aM	A	*	*	*	50	50	50	50	50	50	*	*	*	*	*	50	50	50	50	
		gG	A	*	*	*	63	63	63	63	63	63	*	*	*	*	*	63	63	63	63	
	690 V	aM	A	*	16	25	32	32	40	40	40	40	*	20	25	40	40	50	50	50	50	
		gG	A	*	20	32	40	40	50	50	50	50	*	25	32	50	50	63	63	63	63	
Cable protection against thermal stress in the event of short-circuit (PVC insulated copper cables) Minimum c.s.a. protected at 40 °C and at Isc max.	1 mm ²	kA	●	●	●	≤10	≤6	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾	●	●	●	●	≤10	≤6	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾	
	1.5 mm ²	kA	●	●	●	≤20	≤10	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾	●	●	●	●	≤20	≤10	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾	
	2.5 mm ²		●	●	●	●	●	●	●	●	●	⁽²⁾	●	●	●	●	●	●	●	●	●	
	4...6 mm ²		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

* > 100 kA.
 ● Cable c.s.a. protected.
 (1) As % of Icu.
 (2) Cable c.s.a. not protected.

Circuit breakers

Characteristics - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV2ME and GV2P

Breaking capacity of GV2ME, GV2RT and GV2P																							
Circuit breaker type				GV2ME and GV2RT										GV2P									
				01 to 06	07	08	10	14	16	20	21 & 22	32	01 to 06	07	08	10	14	16	20	21 & 22	32		
Rating			A	0.1 to 1.6	2.5	4	6.3	10	14	16	18	23 & 25	32	0.1 to 1.6	2.5	4	6.3	10	14	16	18	23 & 25	32
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	*	*	*	*	*	*	*	*	50	50	*	*	*	*	*	*	*	*	*	*
		Ics % (1)		*	*	*	*	*	*	*	*	100	100	*	*	*	*	*	*	*	*	*	*
	400/415 V	Icu	kA	*	*	*	*	*	15	15	15	10	*	*	*	*	*	*	*	50	50	50	
		Ics % (1)		*	*	*	*	*	50	50	40	50	*	*	*	*	*	*	*	50	50	50	
	440 V	Icu	kA	*	*	*	50	15	8	8	6	6	*	*	*	*	*	*	50	20	20	20	
		Ics % (1)		*	*	*	100	100	50	50	50	50	*	*	*	*	*	*	75	75	75	75	
	500 V	Icu	kA	*	*	*	50	10	6	6	4	4	*	*	*	*	*	50	42	10	10	10	
		Ics % (1)		*	*	*	100	100	75	75	75	75	*	*	*	*	*	100	75	75	75	75	
	690 V	Icu	kA	*	3	3	3	3	3	3	3	3	*	8	8	6	6	6	6	4	4	4	
		Ics % (1)		*	75	75	75	75	75	75	75	75	*	100	100	100	100	100	100	100	100	100	
Associated fuses (if required) if Ics > breaking capacity Icu conforming to IEC 60947-2	230/240 V	aM	A	*	*	*	*	*	*	*	*	80	80	*	*	*	*	*	*	*	*	*	
		gG	A	*	*	*	*	*	*	*	*	100	100	*	*	*	*	*	*	*	*	*	
	400/415 V	aM	A	*	*	*	*	*	63	63	80	80	*	*	*	*	*	*	*	100	100	100	
		gG	A	*	*	*	*	*	80	80	100	100	*	*	*	*	*	*	*	125	125	125	
	440 V	aM	A	*	*	*	50	50	50	50	63	63	*	*	*	*	*	*	50	63	80	80	
		gG	A	*	*	*	63	63	63	63	80	80	*	*	*	*	*	*	63	80	100	100	
	500 V	aM	A	*	*	*	50	50	50	50	50	50	*	*	*	*	*	50	50	50	50	50	
		gG	A	*	*	*	63	63	63	63	63	63	*	*	*	*	*	63	63	63	63	63	
	690 V	aM	A	*	16	25	32	32	40	40	40	40	*	20	25	40	40	50	50	50	50	50	
		gG	A	*	20	32	40	40	50	50	50	50	*	25	32	50	50	63	63	63	63	63	

* > 100 kA.
(1) As % of Icu.

Circuit breakers

Characteristics - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV2ME and GV2P

Breaking capacity of GV2ME, GV2RT and GV2P (used in association with current limiter GV1L3)														
Circuit breaker type			GV2ME and GV2RT											
Rating			A	01 to 06 0.1 to 1.6	07 2.5	08 4	10 6.3	14 10	16 14	20 18	21 23	22 25	32 32	
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	*	*	*	*	*	*	*	*	*	*	
		Ics % ⁽¹⁾		*	*	*	*	*	*	*	*	*	*	*
	400/415 V	Icu	kA	*	*	*	*	*	100	100	100	100	100	100
		Ics % ⁽¹⁾		*	*	*	*	*	50	50	40	40	40	40
	440 V	Icu	kA	*	*	*	*	*	50	20	20	20	20	20
		Ics % ⁽¹⁾		*	*	*	*	*	75	75	75	75	75	75
500 V	Icu	kA	*	*	*	*	50	42	10	10	10	10	10	
	Ics % ⁽¹⁾		*	*	*	*	100	100	75	75	75	75	75	
Circuit breaker type			GV2P											
Rating			A	01 to 06 0.1 to 1.6	07 2.5	08 4	10 6.3	14 10	16 14	20 18	21 23	22 25	32 32	
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	*	*	*	*	*	*	*	*	*	*	
		Ics % ⁽¹⁾		*	*	*	*	*	*	*	*	*	*	
	400/415 V	Icu	kA	*	*	*	*	*	*	*	*	*	*	*
		Ics % ⁽¹⁾		*	*	*	*	*	*	*	*	*	*	*
	440 V	Icu	kA	*	*	*	*	*	100	100	100	100	100	100
		Ics % ⁽¹⁾		*	*	*	*	*	50	50	50	50	50	50
500 V	Icu	kA	*	*	*	*	100	100	100	100	100	100	100	
	Ics % ⁽¹⁾		*	*	*	*	50	50	50	50	50	50	50	
690 V ⁽³⁾	Icu = Ics	kA	*	50	50	50	50	50	50	50	50	50	50	
Circuit breaker type			GV2ME											
Rating			A	01 to 06 0.1 to 1.6	07 2.5	08 4	10 6.3	14 10	16 14	20 18	21 23	22 25	32 32	
Cable protection against thermal stress in the event of short-circuit (PVC insulated copper cables)	Minimum c.s.a. protected at 40 °C at Isc max.	1 mm ²		●	●	●	≤ 10 kA	≤ 6 kA	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾	
		1.5 mm ²		●	●	●	≤ 20 kA	≤ 10 kA	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾	⁽²⁾	
		2.5 mm ²		●	●	●	●	●	●	●	●	●	●	⁽²⁾
		4...6 mm ²		●	●	●	●	●	●	●	●	●	●	●

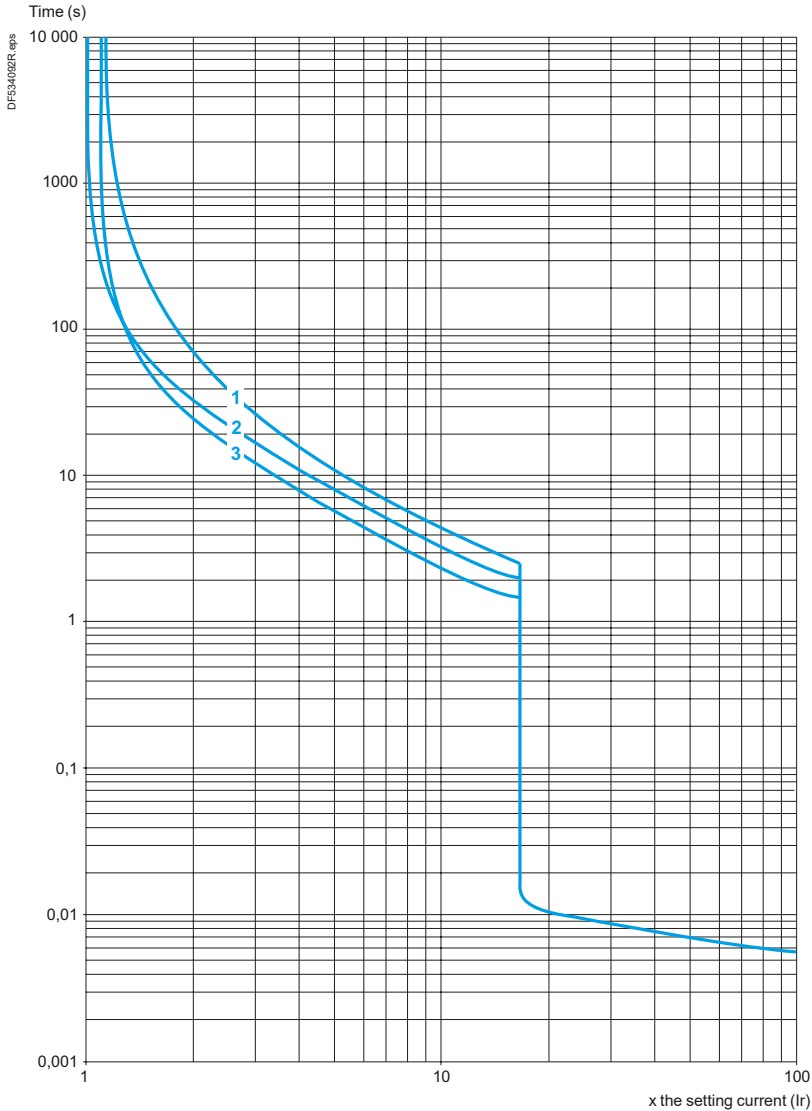
* > 100 kA.
 ● Cable c.s.a. protected.
 (1) As % of Icu.
 (2) Cable c.s.a. not protected.
 (3) With limiter LA9LB920.

TeSys protection components

Magnetic motor circuit breakers GV2L and GV2LE

Tripping curves for GV2L or LE combined with thermal overload relay LRD or LR2K

Average operating times at 20 °C related to multiples of the setting current



- 1 3 poles from cold state
- 2 2 poles from cold state
- 3 3 poles from hot state

Circuit breakers

Curves - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

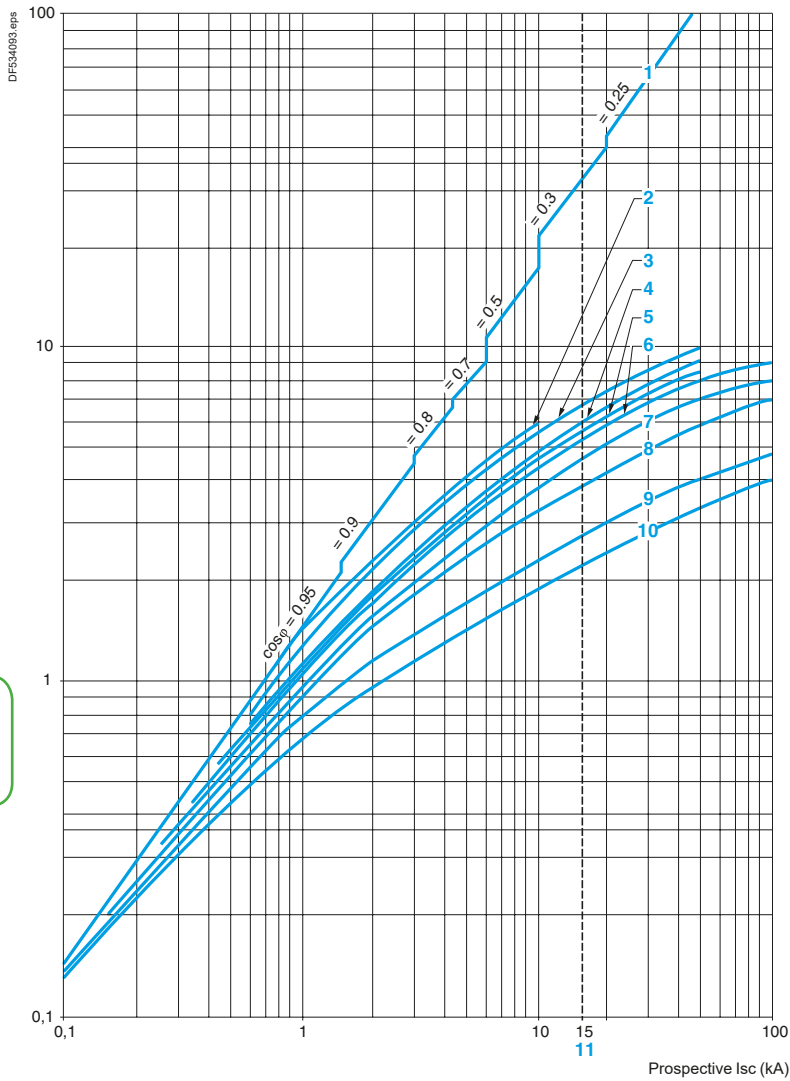
Magnetic motor circuit breakers GV2L and GV2LE

Current limitation on short-circuit for GV2L and GV2LE only (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)



1 Maximum peak current

2 32 A

3 25 A

4 18 A

5 14 A

6 10 A

7 6.3 A

8 4 A

9 2.5 A

10 1.6 A

11 Limit of rated ultimate breaking capacity on short-circuit of GV2LE (14, 18, 23 and 25 A ratings).

Curves - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

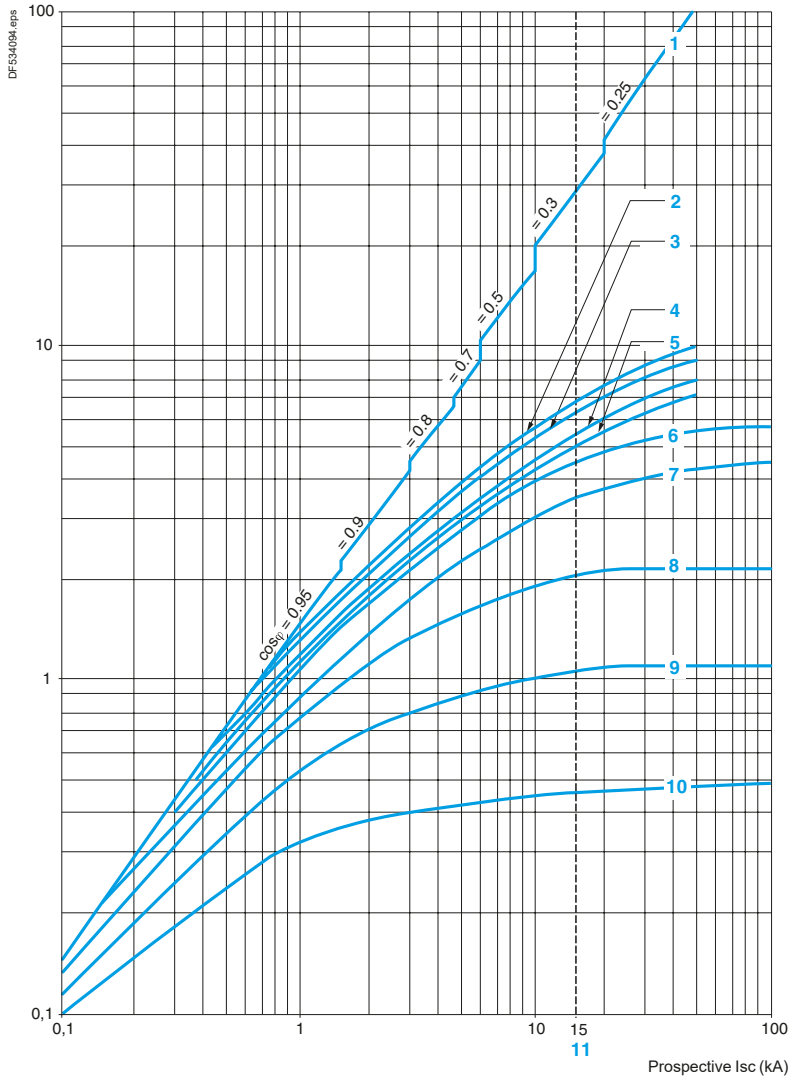
Magnetic motor circuit breakers GV2L and GV2LE

Current limitation on short-circuit for GV2L and GV2LE + thermal overload relay LRD or LR2K (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)



1 Maximum peak current

2 32 A

3 25 A

4 18 A

5 14 A

6 10 A

7 6.3 A

8 4 A

9 2.5 A

10 1.6 A

11 Limit of rated ultimate breaking capacity on short-circuit of GV2LE (14, 18, 23 and 25 A ratings).

Curves - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

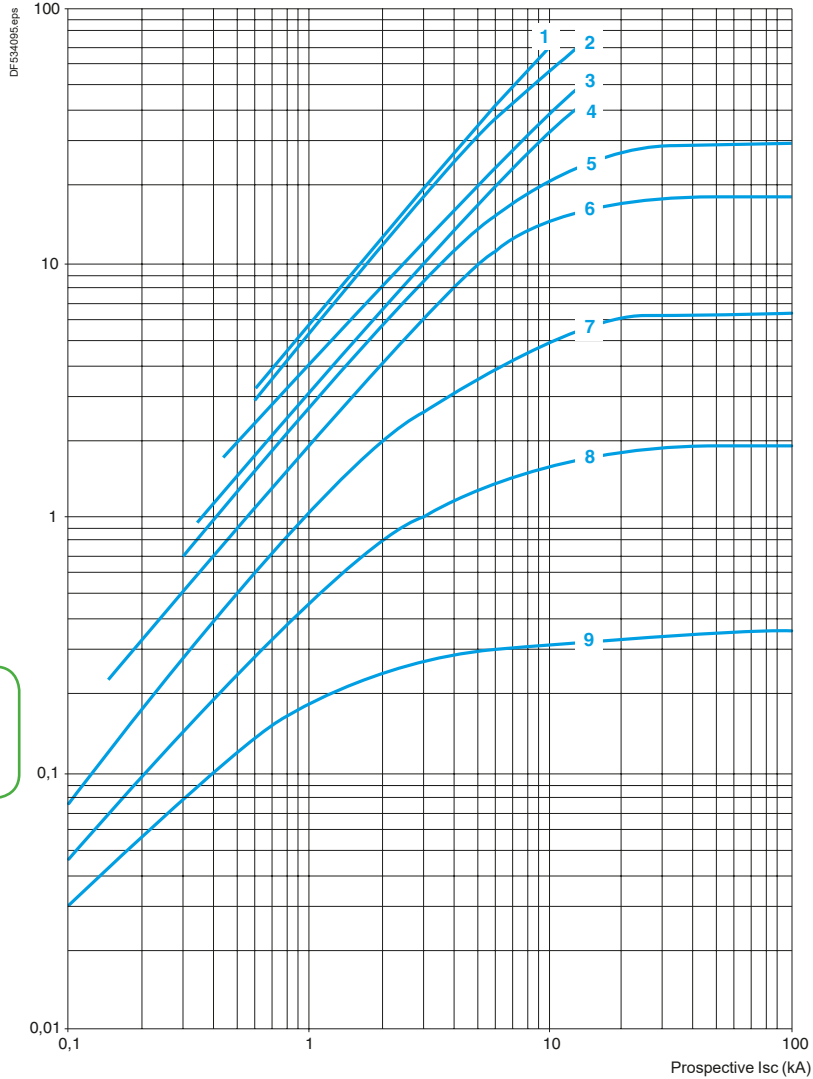
Magnetic motor circuit breakers GV2LE

Thermal limit on short-circuit for GV2LE only

Thermal limit in kA²s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at 1.05 $U_e = 435$ V

Sum of I^2dt (kA²s)

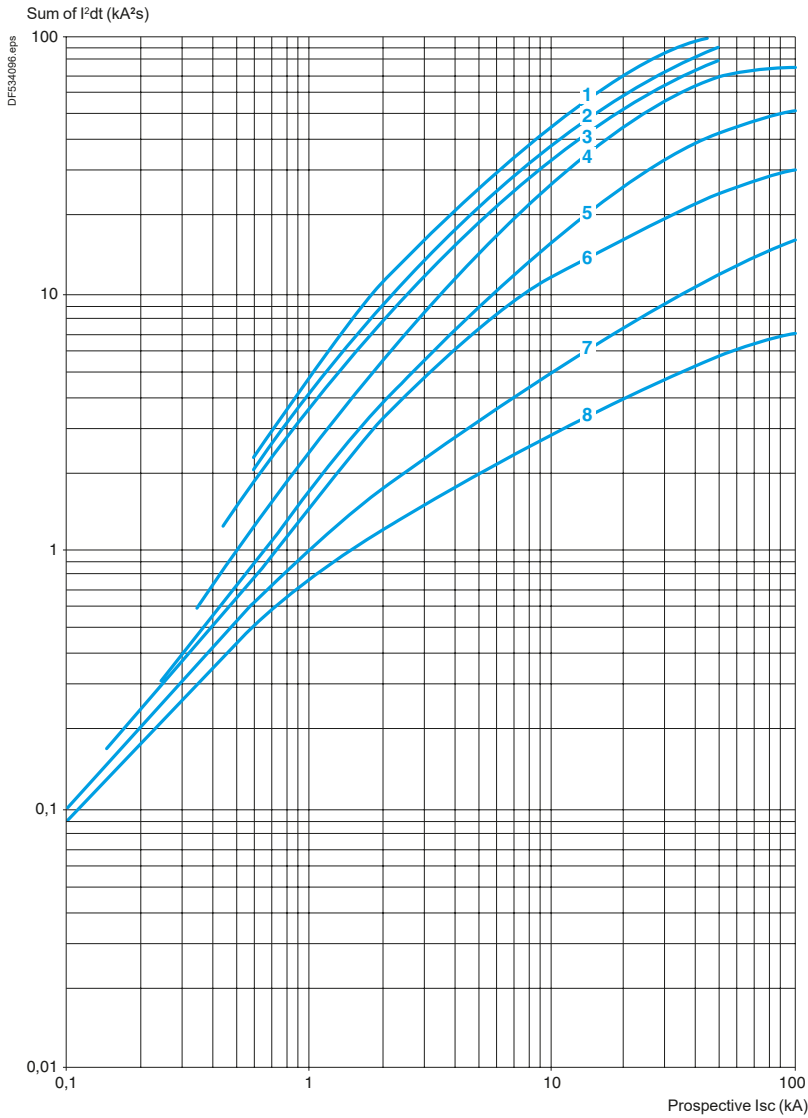


- 1 32 A
- 2 25 A
- 3 18 A
- 4 14 A
- 5 10 A
- 6 6.3 A
- 7 4 A
- 8 2.5 A
- 9 1.6 A

Thermal limit on short-circuit for GV2L only

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective I_{sc}) at 1.05 U_e = 435 V



- 1 25 A and 32 A
- 2 18 A
- 3 14 A
- 4 10 A
- 5 6.3 A
- 6 4 A
- 7 2.5 A
- 8 1.6 A

Circuit breakers

Curves - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

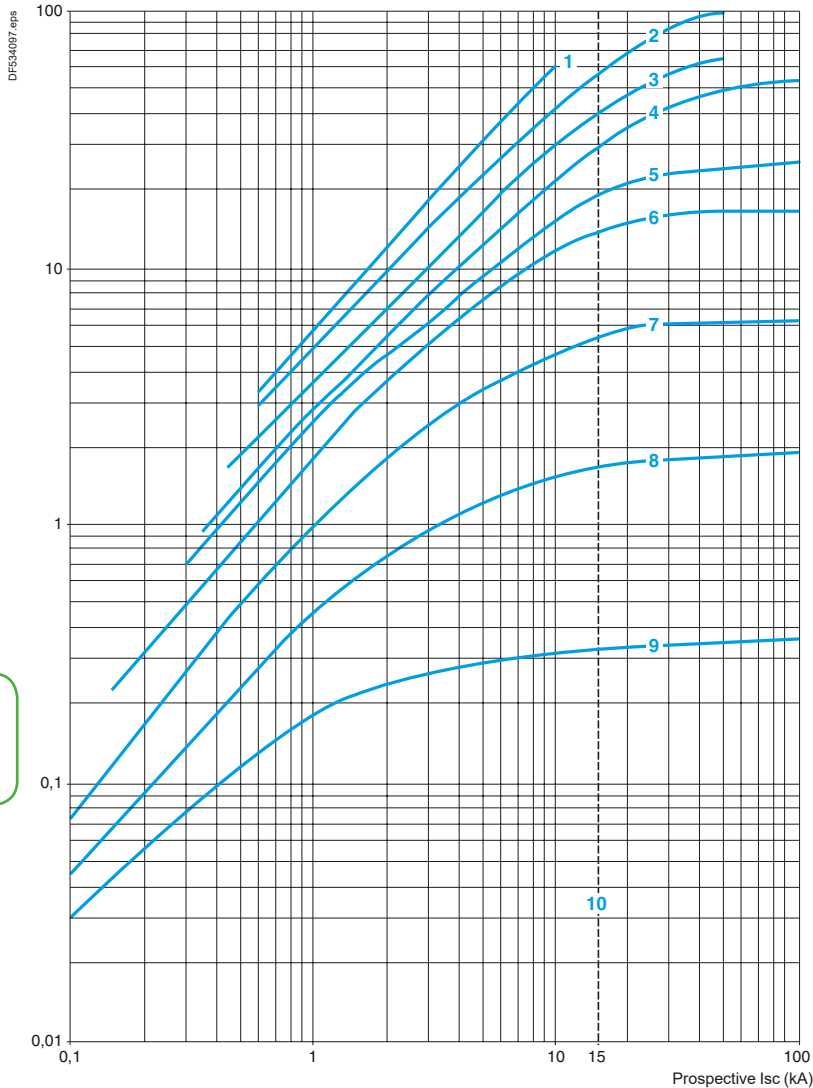
Magnetic motor circuit breakers GV2L and GV2LE

Thermal limit on short-circuit for GV2L and GV2LE + thermal overload relay LRD or LR2K

Thermal limit in kA²s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at 1.05 $U_e = 435$ V

Sum of I^2dt (kA²s)



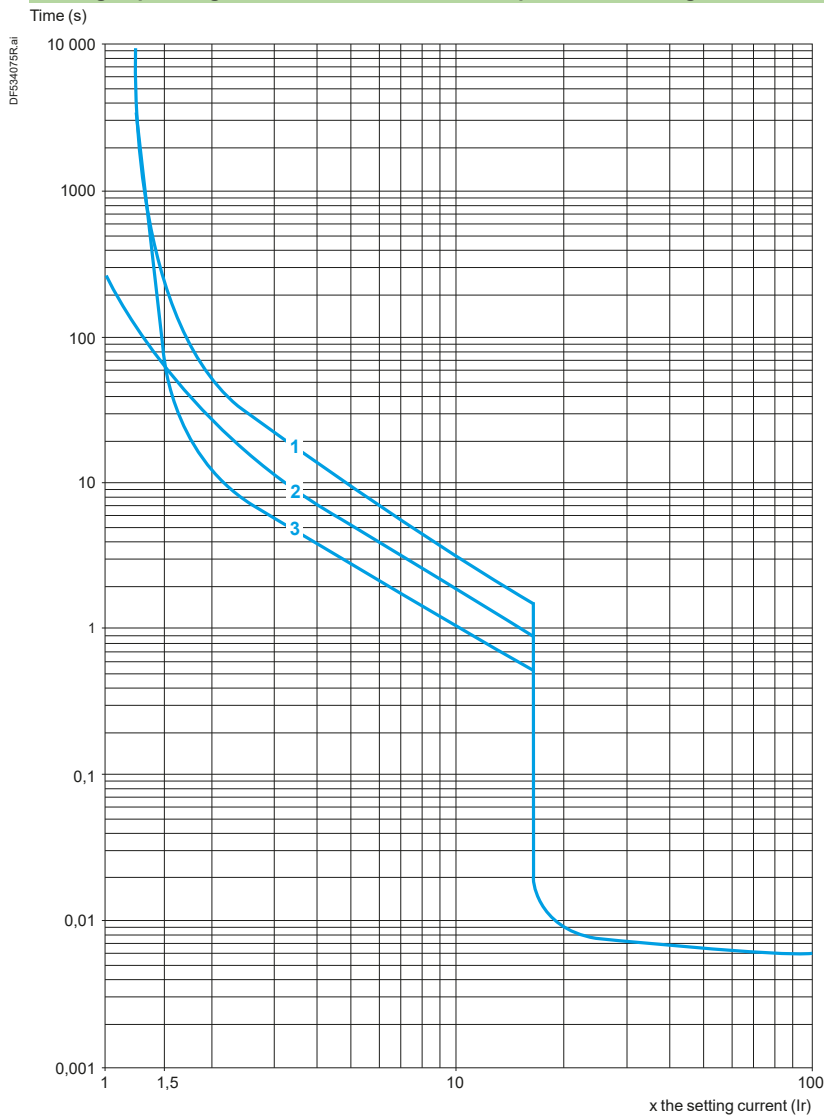
- 1 32 A (GV2LE32)
- 2 25 A and 32 A (GV2L32)
- 3 18 A
- 4 14 A
- 5 10 A
- 6 6.3 A
- 7 4 A
- 8 2.5 A
- 9 1.6 A
- 10 Limit of rated ultimate breaking capacity on short-circuit of GV2 LE (14, 18, 23 and 25 A ratings).

TeSys protection components

Thermal-magnetic motor circuit breakers GV2ME and GV2P

Thermal-magnetic tripping curves for GV2ME, GV2RT and GV2P

Average operating times at 20 °C related to multiples of the setting current



- 1 3 poles from cold state
- 2 2 poles from cold state
- 3 3 poles from hot state

Circuit breakers

Curves - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

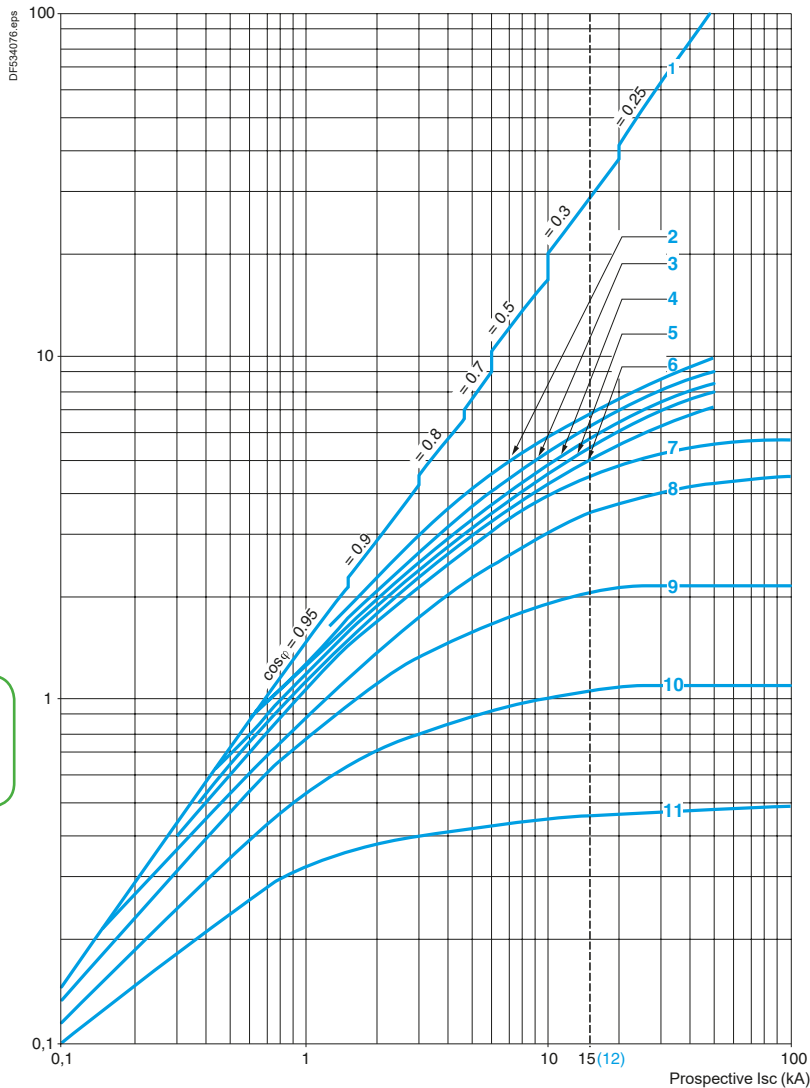
Thermal-magnetic motor circuit breakers GV2ME and GV2P

Current limitation on short-circuit for GV2ME, GV2RT and GV2P (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)



1 Maximum peak current

2 24 - 32 A

3 20 - 25 A

4 17 - 23 A

5 13 - 18 A

6 9 - 14 A

7 6 - 10 A

8 4 - 6.3 A

9 2.5 - 4 A

10 1.6 - 2.5 A

11 1 - 1.6 A

12 Limit of rated ultimate breaking capacity on short-circuit of GV2ME (14, 18, 23 and 25 A ratings)

TeSys protection components

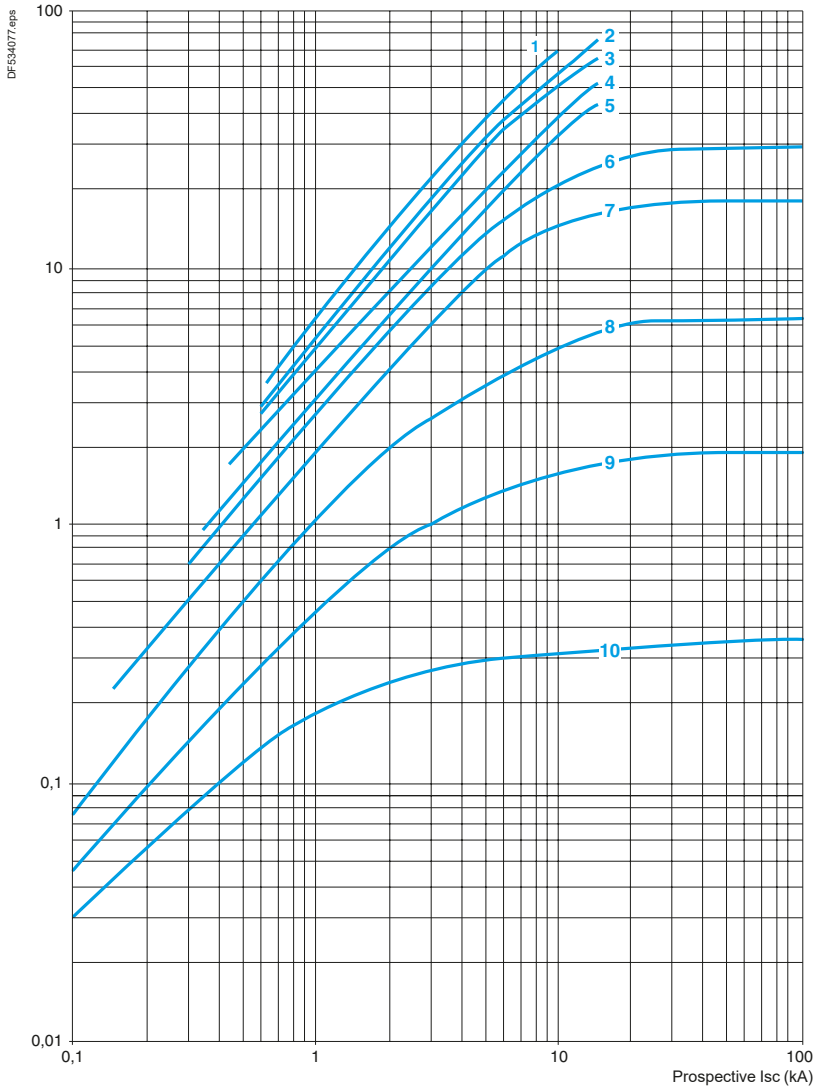
Thermal-magnetic motor circuit breakers GV2ME and GV2RT

Thermal limit on short-circuit for GV2ME and GV2RT

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective I_{sc}) at 1.05 U_e = 435 V

Sum of I²dt (kA²s)



- 1 24 - 32 A
- 2 20 - 25 A
- 3 17 - 23 A
- 4 13 - 18 A
- 5 9 - 14 A
- 6 6 - 10 A
- 7 4 - 6.3 A
- 8 2.5 - 4 A
- 9 1.6 - 2.5 A
- 10 1 - 1.6 A

Curves - TeSys GV2 - 0.06 to 15 kW

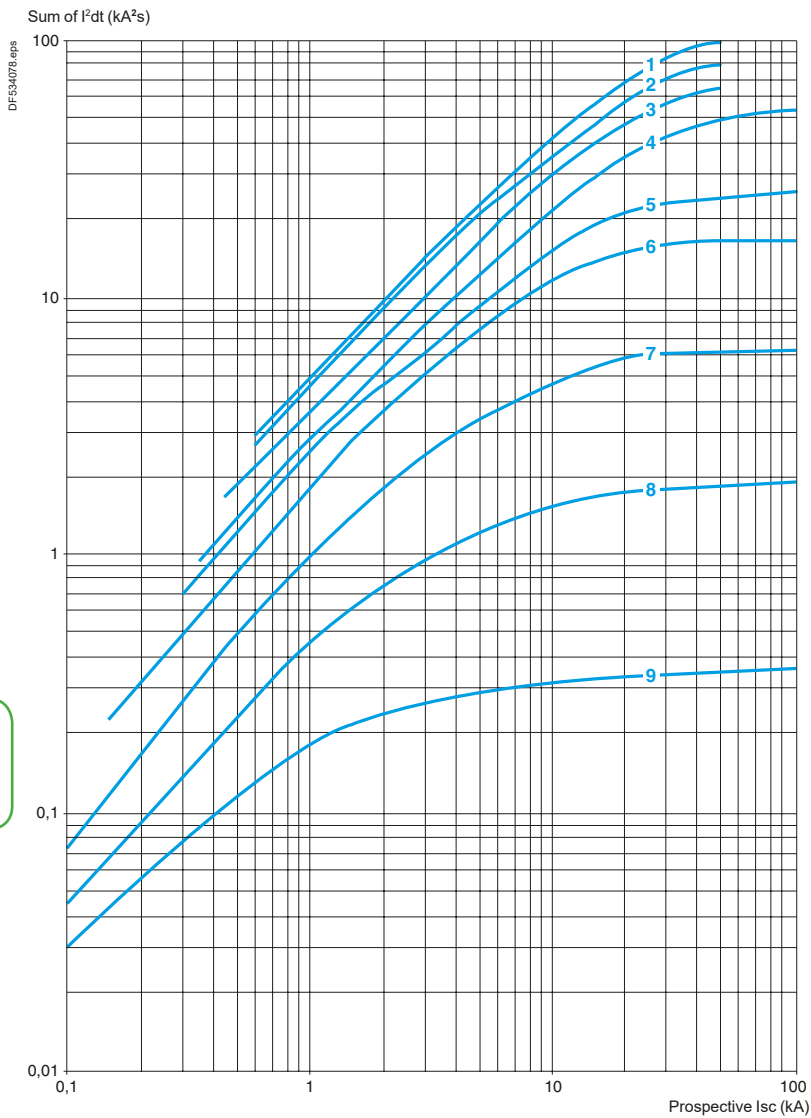
TeSys protection components

Thermal-magnetic motor circuit breakers GV2P

Thermal limit on short-circuit for GV2P

Thermal limit in kA²s in the magnetic operating zone

Sum of I²dt = f (prospective I_{sc}) at 1.05 U_e = 435 V



- 1 20 - 25 A, 24 - 32 A
- 2 17 - 23 A
- 3 13 - 18 A
- 4 9 - 14 A
- 5 6 - 10 A
- 6 4 - 6.3 A
- 7 2.5 - 4 A
- 8 1.6 - 2.5 A
- 9 1 - 1.6 A

TeSys protection components

GV2 motor circuit breakers

Electric trips

Characteristics of GV2 electric trips					
Type of trip			GVAU●●● MN undervoltage trip	GVAX●●● MN undervoltage trip for GV2 mE - safety device for dangerous machines	GVAS●●● MX shunt trip
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690	500	690
	Conforming to UL 60947-4-1, CSA C22.2 n° 60947-4-1	V	600	-	600
Operational voltage (Ue)	Conforming to IEC 60947-1	V	0.85...1.1 Uc	0.85...1.1 Uc	0.7...1.1 Uc
Drop-out voltage		V	0.7...0.35 Uc	0.7...0.35 Uc	0.75...0.2 Uc
Inrush consumption	~ =	VA	12	12	14
Sealed consumption	~ =	VA	3.5	3.5	5
Operating time	Conforming to IEC 60947-1	ms	From the moment the voltage reaches its operational value until opening of the circuit breaker. 10...15		
On-load factor			100 %		
Cabling (spring connection)	Number of conductors		2 or 4		
	Solid cable	mm ²	1...2.5		
	Flexible cable without cable end	mm ² AWG	0.75...2.5		
	Flexible cable with cable end	mm ²	0.75...2.5		
Tightening torque		N.m	1.4 max		
Mechanical durability (C.O.: Close - Open)		C.O.	30000 (GV2ME and GV2P)		

TeSys protection components

Thermal-magnetic motor circuit breakers GV2

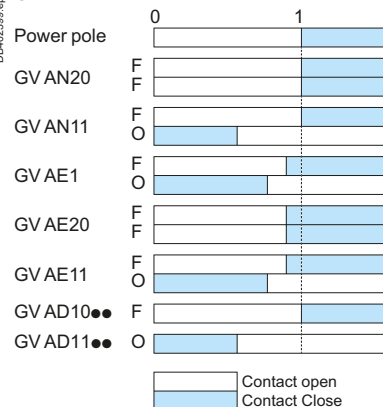
Auxiliary contacts

Type of contacts			Instantaneous auxiliary GVAN, GVAD							Fault signalling GVAD, GVAM11 ⁽¹⁾				Instantaneous auxiliary GVAE				
Rated insulation voltage (Ui) (associated insulation coordination)	Conforming to IEC 60947-1	V	690							690				250 (690 in relation to main circuit)				
	Conforming to UL 60947-4-1, CSA C22.2 n° 60947-4-1	V	600							300				300				
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	6							2.5				2.5				
	Conforming to UL 60947-5-1, CSA C22.2 n° 60947-5-1	A	5							1				1				
Mechanical durability (C.O.: Close - Open)		C.O.	100 000							1000				100 000				
Operational power and current conforming to IEC 60947-5-1. a.c. operation			AC-15/100 000 C.O.							AC-14/1000 C.O.				AC-15/100 000 C.O.				
	Rated operational voltage (Ue)	V	48	110	230	380	440	500	690	24	48	110	230	24	48	110	230	
Operation	Operational power, normal conditions	VA	300	500	720	850	650	500	400	36	48	72	72	48	60	120	120	
	Occasional breaking and making capacities, abnormal conditions	kVA	3	7	13	15	13	12	9	0.22	0.3	0.45	0.45	0.48	0.6	1.27	2.4	
	Rated operational current (Ie)	A	6	4.5	3.3	2.2	1.5	1	0.6	1.5	1	0.5	0.3	2	1.25	1	0.5	
Operational power and current conforming to IEC 60947-5-1. d.c.			DC-13/100 000 C.O.							DC-13/1000 C.O.				DC-13/100 000 C.O.				
	Rated operational voltage (Ue)	V	24	48	60	110	240	–	–	24	48	60	–	24	48	60	–	
Operation	Operational power, normal conditions	W	140	240	180	140	120	–	–	24	15	9	–	24	15	9	–	
	Occasional breaking and making capacities, abnormal conditions	W	240	360	240	210	180	–	–	100	50	50	–	100	50	50	–	
	Rated operational current (Ie)	A	6	5	3	1.3	0.5	–	–	1	0.3	0.15	–	1	0.3	0.15	–	
Low power switching reliability of contact			GV AE: Number of failures for "n" million operating cycles (17 V-5 mA): = 10 ⁻⁶															
Minimum operational conditions d.c. operation		V	17															
		mA	5															
Short-circuit protection			By GB2 CB●● circuit breaker (rating according to operational current for Ue ≤ 415 V) or by gG fuse 10 A max										GB2 CB06 or gG fuse 10 A max					
Cabling, screw clamp terminals	Number of conductors		1			2												
	Solid cable	mm²	1...2.5			1...2.5												
	Flexible cable without cable end	mm²	0.75...2.5			0.75...2.5												
	Flexible cable with cable end	mm²	0.75...1.5			0.75...1.5												
	Tightening torque	N.m	1.4 max			1.4 max												
Cabling, spring terminal connections	Flexible cable without cable end	mm²	GVAN only 0.75...2.5			0.75...2.5			–				0.75...1.5					

Circuit breakers

Operation of instantaneous auxiliary contacts

GV2



(1) For application example of fault signalling contact and short-circuit signalling contact.
 (2) Add an RC circuit type **LA4 D** to the load terminals.

Operation of fault signalling contacts

GVAM11

Change of state following tripping on short-circuit.

GVAD10●● and GVAD01●●

Change of state following tripping on short-circuit, overload or undervoltage.

Characteristics - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

Thermal-magnetic and magnetic motor circuit breakers GV2

Accessories

Characteristics of 3-pole busbars GV2G●●●						
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	GV2G●●● 690			
Conventional thermal current (Ith)	Conforming to IEC 60439-1	A	63			
Rated operational current (Ie)		A	63			
Permissible peak current (I peak)		kA	11			
Permissible thermal limit (I ^{2t})		kA²s	104			
Degree of protection	Conforming to IEC 60529		IP 20			
Terminal block			Yes			
Characteristics of terminal blocks GV2G05 and GV1G09 (for GV2ME and GV2P)						
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690			
Conventional thermal current (Ith)	Conforming to IEC 60439-1	A	63			
Rated operational current (Ie)		A	63 115			
Degree of protection	Conforming to IEC 60529		IP 20			
Connection	Solid cable	mm²	1 x 1.5 to 25 conductor or 2 x 1.5 to 6 conductors			
	Flexible cable without cable end	mm²	1 x 1.5 to 16 conductor or 2 x 1.5 to 4 conductors			
	Flexible cable with cable end	mm²	1 x 1.5 to 10 conductor or 2 x 1.5 to 2 conductors			
	Flexible or solid cable AWG		1 AWG 4			
Tightening torque	Connector	N.m	2.2			
	Screw clamp terminals	N.m	1.7			
Characteristics of current limiters (GV2ME and GV2P)						
Type			GV1L3	LA9LB920		
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690	690		
Conventional thermal current (Ith)	Conforming to IEC 60947-1	A	63	63		
Rated operational current (Ie)		A	32	32		
Operating threshold	rms current	A	1500 (non adjustable threshold)	1000 (non adjustable threshold)		
Connection			1 conductor	2 conductors	1 conductor	2 conductors
	Solid cable	mm²	1.5...25	1.5...10	1.5...25	1.5...10
	Flexible cable without cable end	mm²	1.5...25	2.5...10	1.5...25	1.5...10
	Flexible cable with cable end	mm²	1.5...16	1.5... 4	1.5...16	1.5... 4
Tightening torque		N.m	2.2			

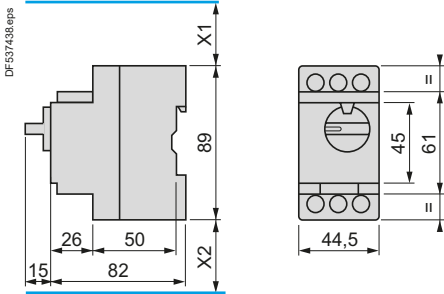
Dimensions, mounting - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

Magnetic motor circuit breakers GV2L and GV2LE

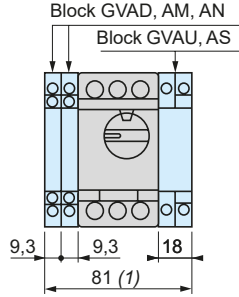
GV2L

Dimensions



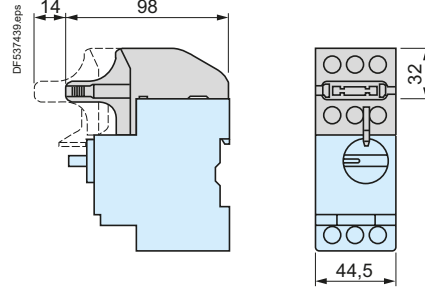
X1 Electrical clearance = 40 mm for $U_e \leq 415$ V, or 80 mm for $U_e = 440$ V, or 120 mm for $U_e = 500$ and 690 V.
X2 = 40 mm.

GVAD, AM, AN, AU, AS



(1) Maximum.

GV2AK00



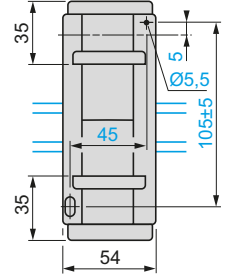
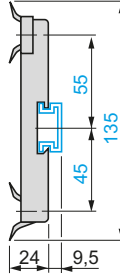
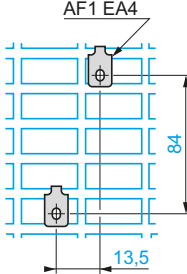
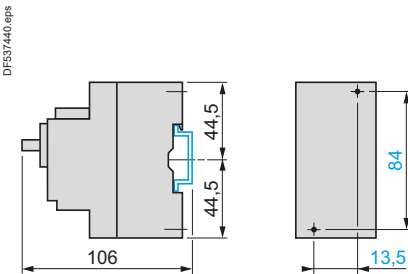
Mounting

On rail AM1 DE200, AM1 ED200 (35 x 15)

Panel mounted

On pre-slotted mounting plate AM1 PA

Adapter plate GK2AF01



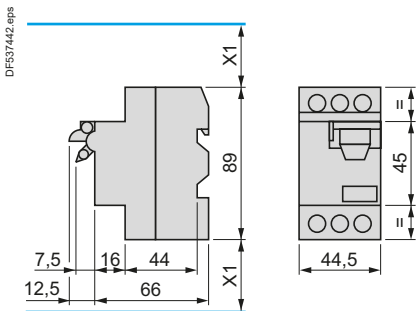
7.5 mm height compensation plate GV1F03



Circuit breakers

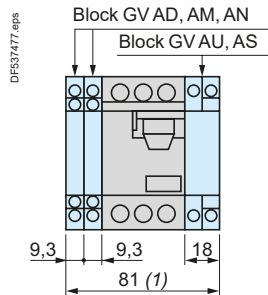
GV2LE

Dimensions



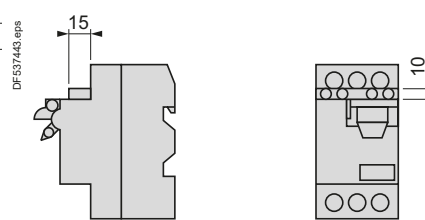
X1 Electrical clearance = 40 mm for $U_e \leq 690$ V.

GVAD, AM, AN, AU, AS



(1) Maximum.

GVAE



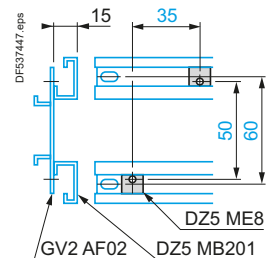
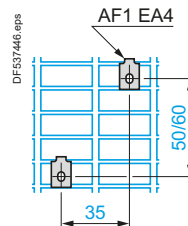
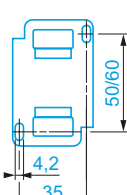
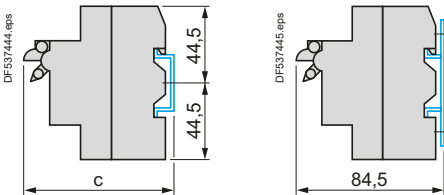
Mounting

On 35 mm rail

On panel with adapter plate GV2 AF02

On pre-slotted plate AM1 PA

On rails DZ5 MB201



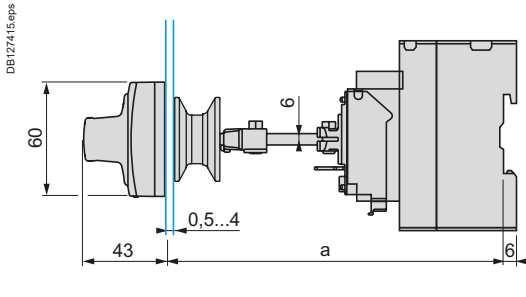
c = 80 on AM1 DP200 (35 x 7.5) and 88 on AM1 DE200, ED200 (35 x 15)

TeSys protection components

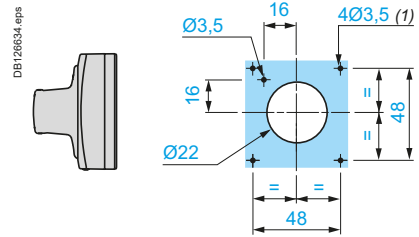
Magnetic motor circuit breakers GV2L and GV2LE

Mounting

Mounting of external operator GV2APN01, GV2APN02 or GV2APN04 for motor circuit breakers GV2L

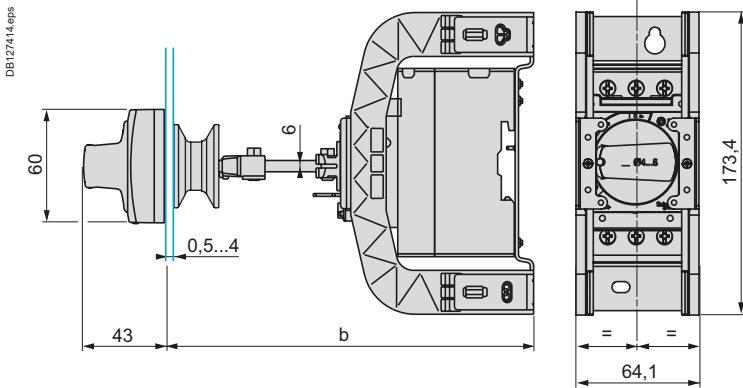


Door cut-out

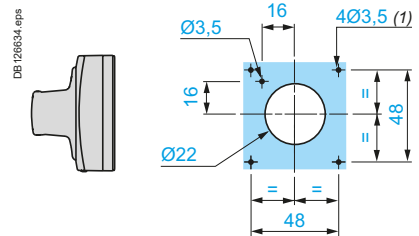


(1) For IP65 only.

Mounting of external operator GVAPH02 for motor circuit breakers GV2L



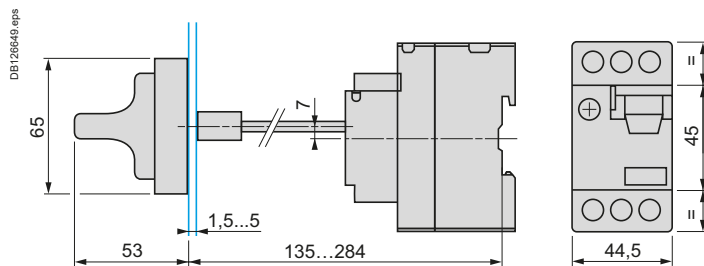
Door cut-out



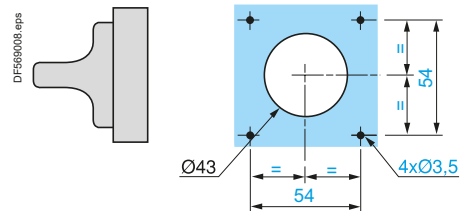
(1) For IP65 only.

	a		b	
	Mini	Maxi	Mini	Maxi
GV2 APN●●	140	250		
GV2 APN●● + GV APH02			151	250
GV2 APN●● + GV APK11	250	434	-	-
GV2 APN●● + GV APH02 + GV APK11	-	-	250	445

Mounting of external operator GV2AP03 for GV2LE



Door cut-out



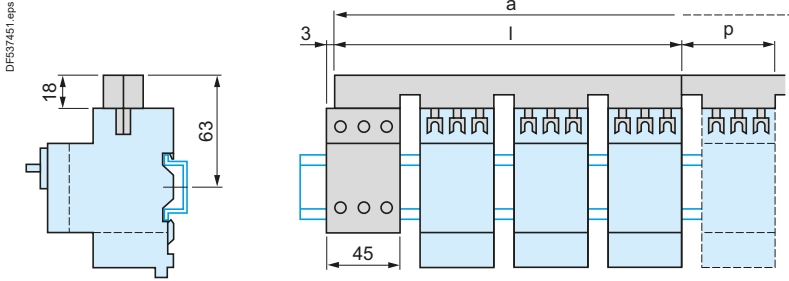
Dimensions, mounting - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

Magnetic motor circuit breakers GV2L and GV2LE

GV2LE

Sets of busbars GV2G445, GV2G454, GV2G472, with terminal block GV2G05



	l	p
GV2G445 (4 x 45 mm)	179	45
GV2G454 (4 x 54 mm)	206	54
GV2G472 (4 x 72 mm)	260	72

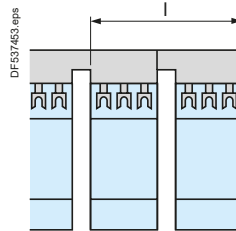
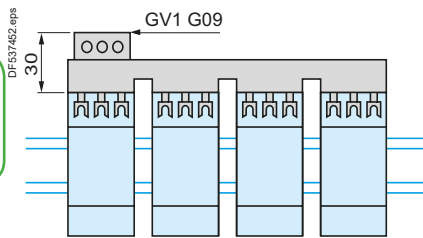
Number of tap-offs	a			
	5	6	7	8
GV2G445	224	269	314	359
GV2G454	260	314	368	422
GV2G472	332	404	476	548

Sets of busbars GV2LE

Sets of busbars GV2G●●● with term. block GV1G09

Sets of busbars GV2G245, GV2G254, GV2GR272

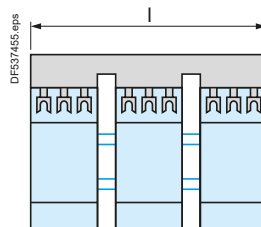
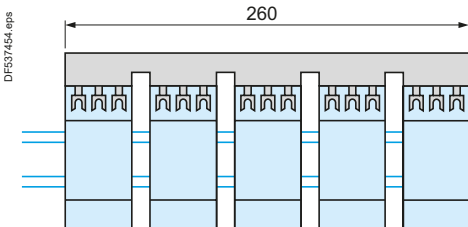
Circuit breakers



	l
GV2G245 (2 x 45 mm)	89
GV2G254 (2 x 54 mm)	98
GV2G272 (2 x 72 mm)	116

Set of busbars GV2G554

Sets of busbars GV2G345 and GV2G354



	l
GV2G345 (3 x 45 mm)	134
GV2G354 (3 x 54 mm)	152

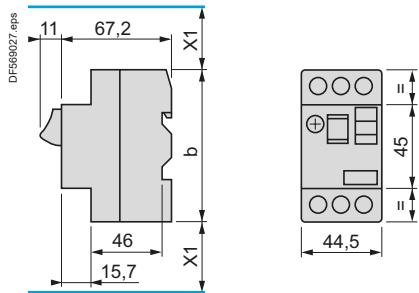
Dimensions, mounting - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

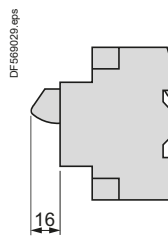
Magnetic motor circuit breakers GV2ME and GV2P

Dimensions

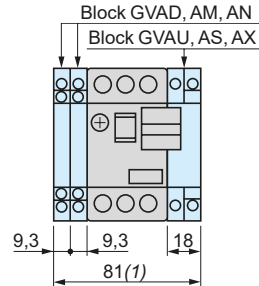
GV2ME



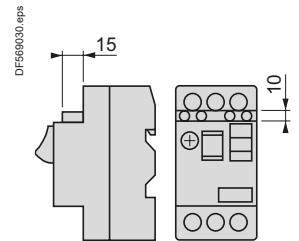
GVAX



GVAD, AM, AN, AU, AS, AX



GVAE



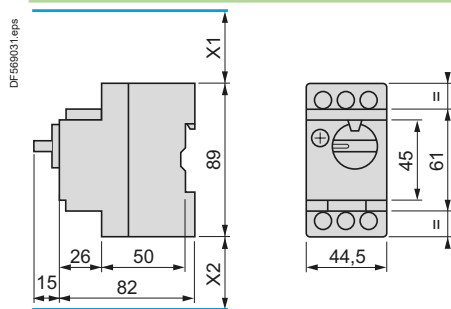
b

GV2ME●●	89
GV2ME●●3	101

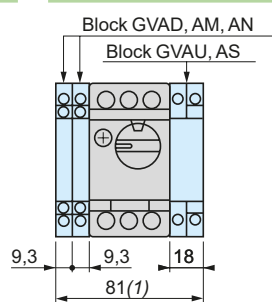
(1) Maximum.

X1 Electrical clearance = 40 mm for $U_e \leq 690$ V

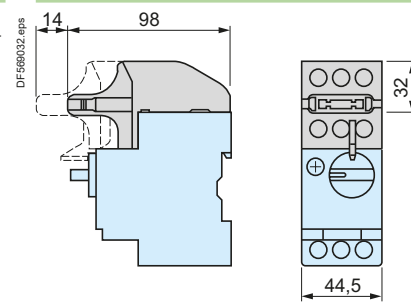
GV2P



GVAD, AM, AN, AU, AS



GV2AK00

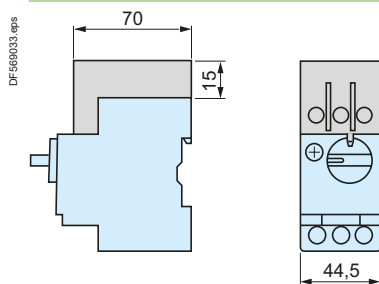


(1) Maximum.

X1 Electrical clearance = 40 mm for $U_e \leq 415$ V, or 80 mm for $U_e = 440$ V, or 120 mm for $U_e = 500$ and 690 V

X2 = 40 mm

GV2GH7



Dimensions, mounting - TeSys GV2 - 0.06 to 15 kW

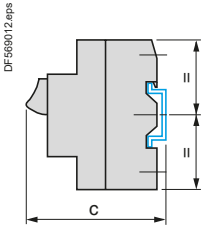
TeSys protection components

Thermal-magnetic motor circuit breakers GV2ME and GV2P

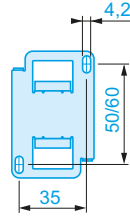
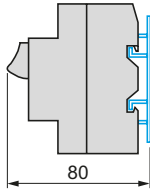
Mounting

GV2ME

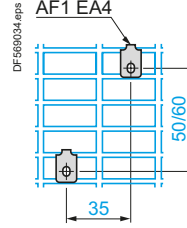
On 35 mm rail



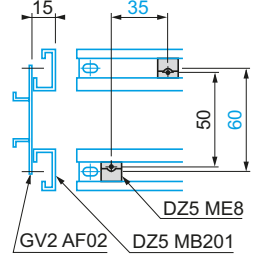
On panel with adapter plate GV2AF02



On pre-slotted plate AM1 PA



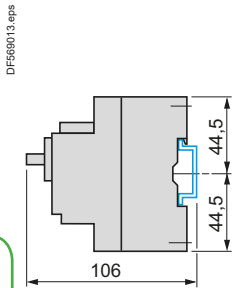
On rails DZ5 MB201



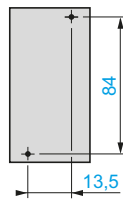
c = 78.5 on AM1 DP200 (35 x 7.5)
c = 86 on AM1 DE200, ED200 (35 x 15)

GV2P

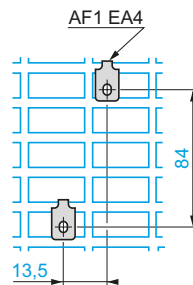
On rail AM1 DE200, ED200 (35 x 15)



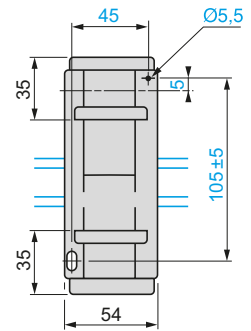
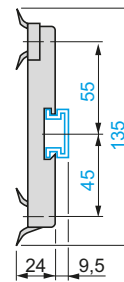
Panel mounted



On pre-slotted plate AM1 PA



Adapter plate GK2AF01

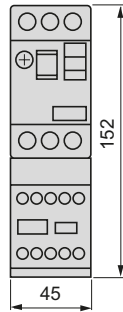
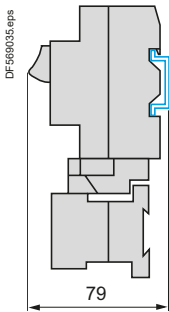


Circuit breakers

Dimensions

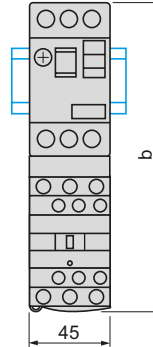
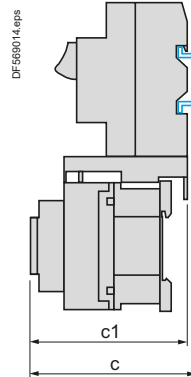
GV2AF01

Combination GV2ME + TeSys k contactor

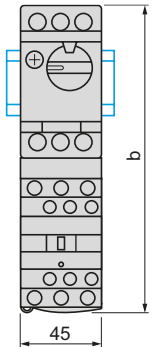
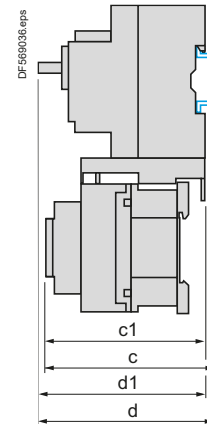


GV2AF3

Combination GV2ME + TeSys d contactor



Combination GV2P + TeSys d contactor



GV2ME +	LC1D09 ...D18	LC1D25 and D32
b	176.4	186.8
c1	94.1	100.4
c	99.6	105.9

GV2P +	LC1D09 ...D18	LC1D25 and D32
b	176.4	186.8
c1	100.1	106.4
c	105.6	111.9
d1	95	95
d	100.5	100.5

Dimensions, mounting - TeSys GV2 - 0.06 to 15 kW

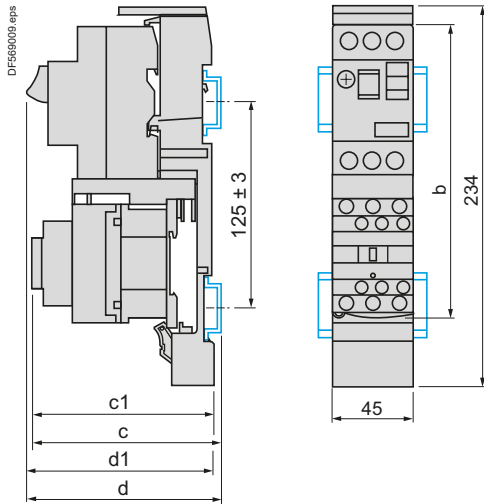
TeSys protection components

Thermal-magnetic motor circuit breakers GV2ME and GV2P

Dimensions

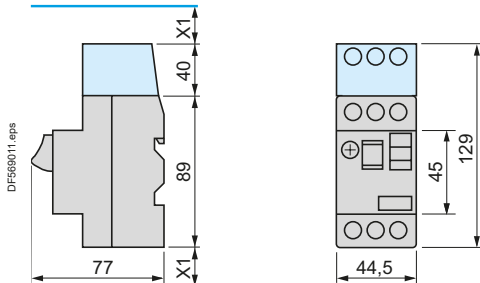
GV2AF4 + LAD311

Combination GV2ME + TeSys d contactor



GV2ME +	LC1D09...D18	LC1D25 and D32
b	176.4	186.8
c1	103.1	136.4
c	135.6	141.9
d1	107	107
d	112.5	112.5

GV2ME + GV1L3 (current limiter)



X1 = 10 mm for Ue = 230 V
or 30 mm for 230 V < Ue ≤ 690 V

7.5 mm height compensation plate GV1F03



Circuit breakers

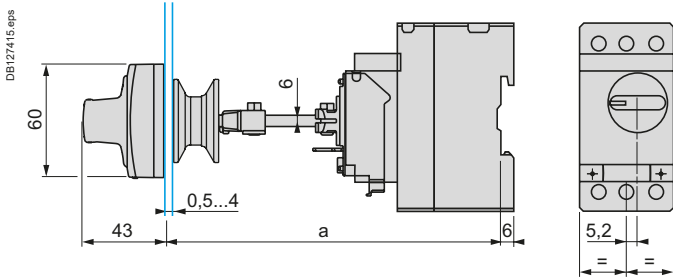
Dimensions, mounting - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

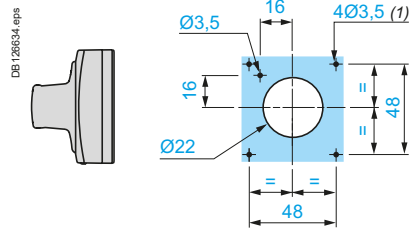
Thermal-magnetic motor circuit breakers GV2P

Mounting

Mounting of external operator GV2APN01, GV2APN02 or GV2APN04 for motor circuit breakers GV2P

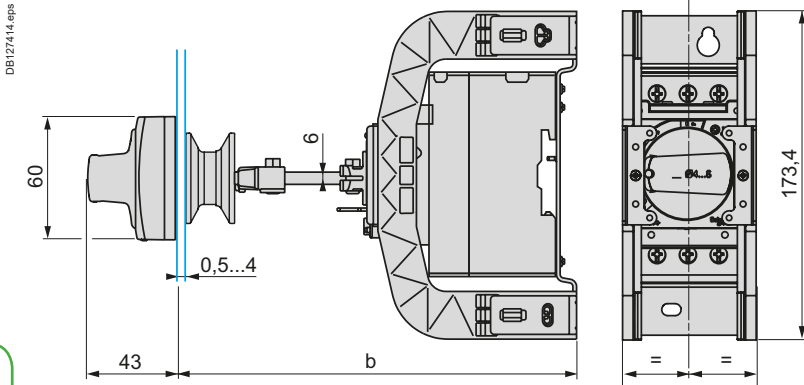


Door cut-out

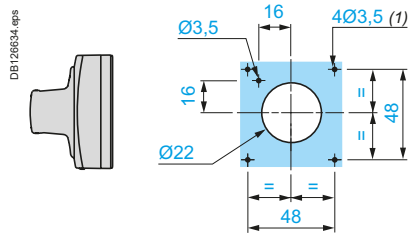


(1) For IP65 only.

Mounting of external operator GVAPH02 for motor circuit breakers GV2P



Door cut-out



(1) For IP65 only.

Circuit breakers

	a		b	
	Mini	Maxi	Mini	Maxi
GV2APN●●	140	250		
GV2APN●● + GVAPH02			151	250
GV2APN●● + GVAPK11	250	434	-	-
GV2APN●● + GVAPH02 + GVAPK11	-	-	250	445

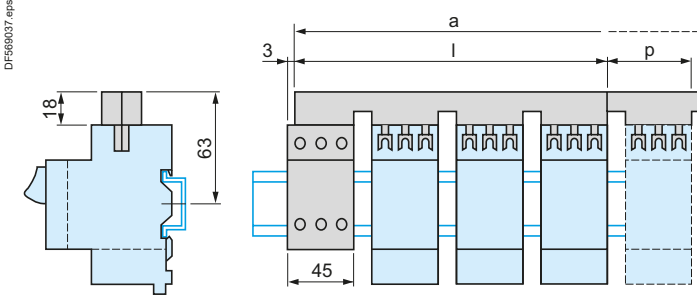
Dimensions, mounting - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV2ME and GV2P

GV2ME, GV2P

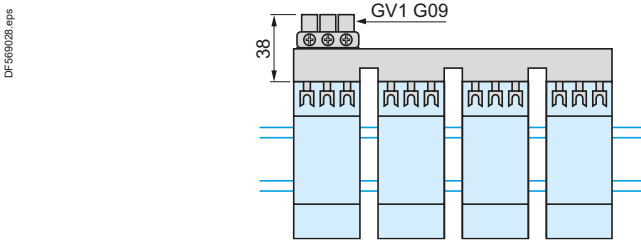
Sets of busbars GV2G445, GV2G454, GV2G472, with terminal block GV2G05



	l	p
GV2G445 (4 x 45 mm)	179	45
GV2G454 (4 x 54 mm)	206	54
GV2G472 (4 x 72 mm)	260	72

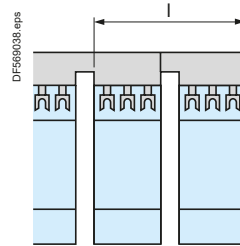
Number of tap-offs	a			
	5	6	7	8
GV2G445	224	269	314	359
GV2G454	260	314	368	422
GV2G472	332	404	476	548

Sets of busbars GV2G●●● with terminal block GV1G09

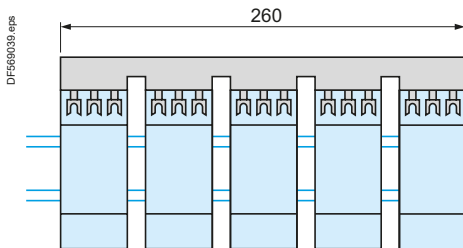


	l
GV2G245 (2 x 45 mm)	89
GV2G254 (2 x 54 mm)	98
GV2G272 (2 x 72 mm)	116

Sets of busbars GV2G245, GV2G254, GV2G272

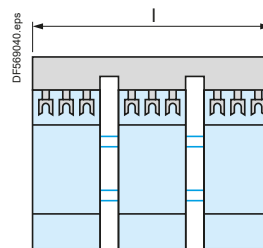


Sets of busbars GV2G554



	l
GV2G345 (3 x 45 mm)	134
GV2G354 (3 x 54 mm)	152

Sets of busbars GV2G345 and GV2G354



Circuit breakers

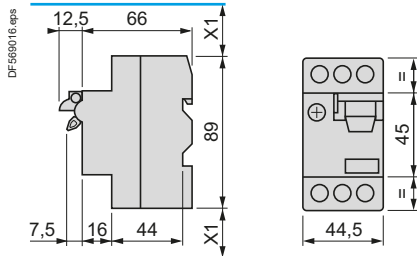
Dimensions, mounting - TeSys GV2 - 0.06 to 15 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV2RT

GV2RT

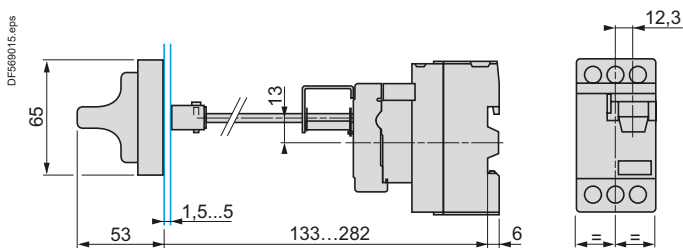
Dimensions



X1: Electrical clearance = 40 mm for $U_e < 690\text{ V}$

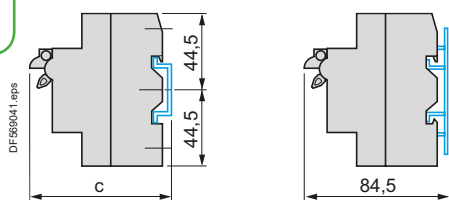
Mounting

Mounting of external operator GV2AP03



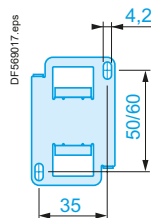
Circuit breakers

On 35 mm rail

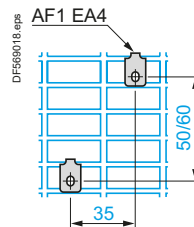


$c = 80$ on AM1 DP200 (35 x 7.5)
 $c = 88$ on AM1 DE200, ED200 (35 x 15)

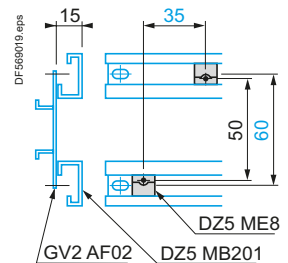
On panel with adapter plate GV2AF02



On pre-slotted plate AM1 PA



On rails DZ5 MB

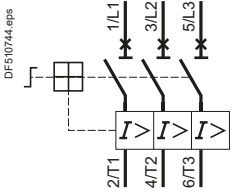


TeSys protection components

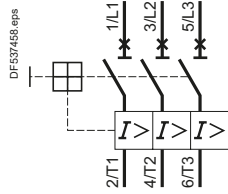
Thermal-magnetic motor circuit breakers GV2L, GV2LE, GV2ME, GV2P, GV2RT

Schemes

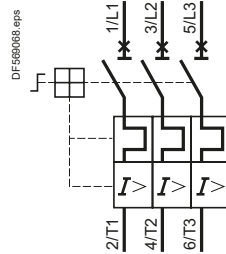
GV2L●●



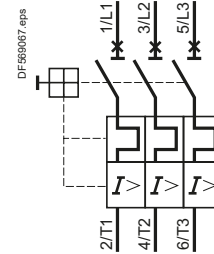
GV2LE●●



GV2P●●



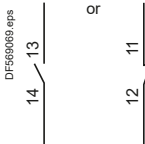
GV2ME●● and GV2RT



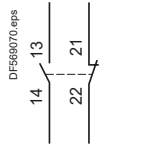
Front mounting add-on contact blocks

Instantaneous auxiliary contacts

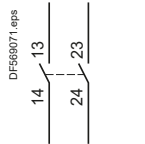
GVAE1



GVAE11



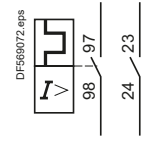
GVAE20



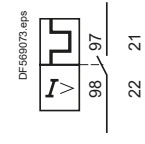
Front mounting add-on contact blocks

Instantaneous auxiliary contacts and fault signalling contacts

GVAED101



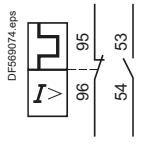
GVAED011



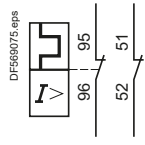
Side mounting add-on contact blocks

Instantaneous auxiliary contacts and fault signalling contacts

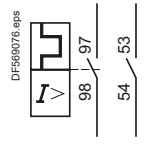
GVAD0110



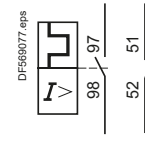
GVAD0101



GVAD1010

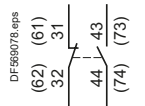


GVAD1001

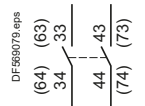


Instantaneous auxiliary contacts

GVAN11

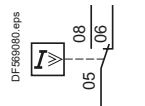


GVAN20



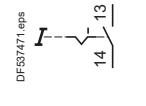
Short-circuit signalling contacts

GVAM11

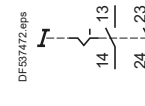


Start-Stop signalling contact blocks

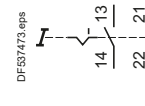
GK2AX10



GK2AX20

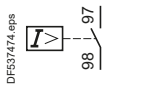


GK2AX50

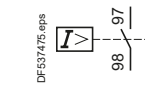


Fault signaling contact blocks

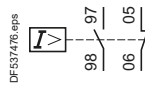
GK2AX12



GK2AX22

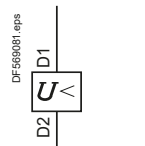


GK2AX52

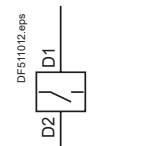


Voltage trips

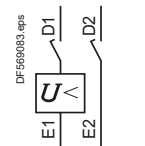
GVAU●●●



GVAS●●●

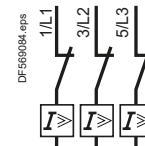


GVAX●●●

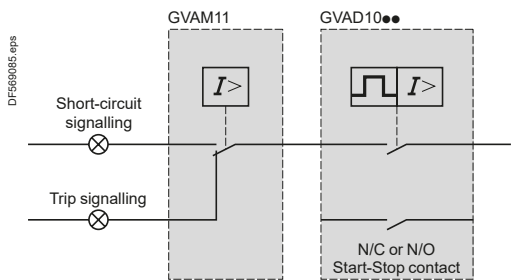


Current limiter

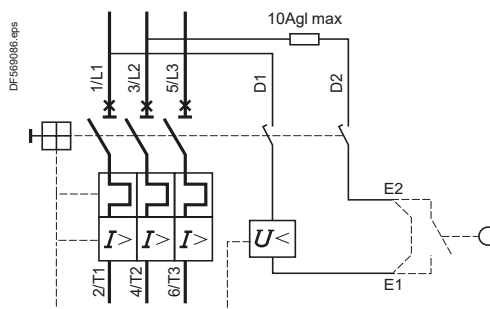
GV1L3



Use of fault signalling contact and short-circuit signalling contact



Connection of undervoltage trip for dangerous machines (conforming to INRS) on GV2ME only



TeSys GV3

5 to 45 kW



Characteristics - TeSys GV3 - 5.5 to 45 kW

TeSys protection components

Motor circuit breakers

Environment				
Circuit breaker type			GV3L	GV3P
Conforming to standards			IEC/EN 60947-4-1 IEC/EN 60947-2	IEC/EN 60947-4-1 IEC/EN 60947-2 UL 60947-4-1 CSA C22.2 n° 60947-4-1
Product certifications			CCC, EAC, BV, LROS, DNV-GL, ABS	CCC, UL, CSA, EAC, ATEX, BV, LROS, DNV-GL, ABS
Climatic withstand			According to IACS E10	
Degree of protection (front face)	Conforming to IEC 60529	Open mounted	Against direct finger contact: IP20	
		In enclosure	-	GV3 PC01 and GV3 PC02 : IP55
Shock resistance	Conforming to IEC 60068-2-27		On: 15 gn -11 ms (On: 5 gn -11 ms for GV3L73, GV3L80, GV3P73, GV3P80) Off: 30 gn -11 ms	
Vibration resistance ⁽¹⁾	Conforming to IEC 60068-2-6		4 gn (5...300 Hz)	
Ambient air temperature	Storage		°C	-40...+80
	Operation	Open mounted	°C	-20...+60 ⁽²⁾
Temperature compensation		In enclosure	Open mounted	°C
	In enclosure		°C	-20...+60
Flame resistance	Conforming to IEC 60695-2-11		°C	960
Maximum operating altitude			m	3000
Suitable for isolation	Conforming to IEC 60947-1 § 7-1-6			Yes
Resistance to mechanical impact			J	-
				10 IK09 (in enclosure)
Sensitivity to phase failure			Yes, conforming to IEC 60947-4-1 § 8-2-1-5-2 for GV3P	
Technical characteristics				
Circuit breaker type			GV3L	GV3P
Utilisation category	Conforming to IEC 60947-2		A	-
	Conforming to IEC 60947-4-1		-	AC-3
Rated operational voltage (U _e)	Conforming to IEC 60947-2		V	690
Rated insulation voltage (U _i)	Conforming to IEC 60947-2		V	690
Rated voltage	Conforming to UL 60947-4-1, CSA C 22.2 n° 60947-4-1		V	600
Rated operational frequency	Conforming to IEC 60947-4-1 UL, CSA		Hz	50/60
Rated impulse withstand voltage (U _{imp})	Conforming to IEC 60947-2		kV	6
Total power dissipated per pole			W	8
Mechanical durability (C.O.: Close, Open)			C.O.	50 000
Electrical durability for AC-3 duty	415 V In		C.O.	50 000 (20 000 for GV3L73, GV3P73, GV3L80, GV3P80)
Duty class (maximum operating rate)			C.O./h	25
Maximum conventional rated thermal current (I _{th})			A	-
Rated duty	Conforming to IEC 60947-4-1			13 to 80
Operating threshold of magnetic trips				Continuous duty
				14 I max

⁽¹⁾ In case of vibration above 3 gn on contactor with electronic coil (TeSys D Green) and direct mounting with LRD relay, it is recommended to mount the devices separately by screws on metal plate.

⁽²⁾ Leave a space of 9 mm between 2 circuit breakers: either an empty space, or side mounting add-on contact blocks. Side by side mounting is possible up to 40 °C.

Characteristics - TeSys GV3 - 5.5 to 45 kW

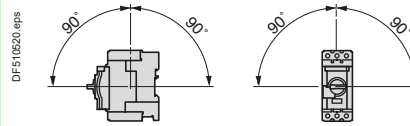
TeSys protection components

Motor circuit breakers

Mounting characteristics

Operating position

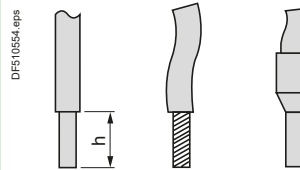
Without derating, in relation to normal vertical mounting plane ⁽¹⁾



Connection characteristics

Connection to screw clamp terminals or spring terminals

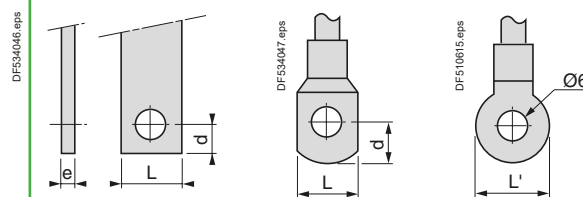
Bare cables



Circuit breaker type		GV3 L		GV3 P	
Connection to screw clamp terminals ⁽²⁾ (Max. number of conductors x c.s.a.)	Solid cable	mm ²	2 x 1	Max.	1 x 25 and 1 x 35
	Flexible cable without cable end	mm ²	2 x 1	Max.	1 x 25 and 1 x 35
	Flexible cable with cable end	mm ²	2 x 1	Max.	1 x 25 and 1 x 35
Tightening torque		N.m	5	5	5: 25 mm ² 8: 35 mm ²

Connection by bars or lugs

Bars or lugs



Circuit breaker type		GV3 L $\bullet\bullet$ 6		GV3 P $\bullet\bullet$ 6	
Pitch	Without spreaders	mm	17.5		
	With spreaders	mm	–		
Bars or cables with lugs	e	mm	≤ 6		
	L	mm	≤ 13.5		
	L'	mm	≤ 16.5		
	d	mm	≤ 10		
Screws			M6		
	Tightening torque	N.m	6		
Bare cables (copper or aluminium) with connectors	Height (h)	mm	–		
	C.s.a.	mm ²	–		
	Tightening torque	N.m	–		

⁽¹⁾ When mounting on a vertical rail, fit a stop to prevent any slippage.

⁽²⁾ For motor circuit breakers **GV3P**: BTR hexagon socket head screws, **EverLink**® system.

Require use of an insulated Allen key, in compliance with local electrical wiring regulations.

⁽³⁾ For cross-sections 1 to 1.5 mm², the use of an **LA9D99** cable end reducer is recommended.

TeSys protection components

Motor circuit breakers GV3L

Breaking capacity of GV3L

Type				GV3L25	GV3L32	GV3L40	GV3L50	GV3L65	GV3L73	GV3L80	
Breaking capacity of the circuit-breaker only or of the circuit-breaker combined with a thermal overload relay	230/240 V	Icu	kA	100	100	100	100	100	65	65	
		Ics % ⁽¹⁾		100	100	100	100	100	100	100	
	400/415 V	Icu	kA	100	100	50	50	50	50	50	
		Ics % ⁽¹⁾		100	100	100	100	100	60	60	
	440 V	Icu	kA	50	50	50	50	50	50	50	
		Ics % ⁽¹⁾		100	100	100	100	100	60	60	
	500 V	Icu	kA	12	12	12	12	12	12	12	
		Ics % ⁽¹⁾		50	50	50	50	50	50	50	
	690 V	Icu	kA	6	6	6	6	6	6	6	
		Ics % ⁽¹⁾		50	50	50	50	50	50	50	
	Associated fuses (if required) for use with circuit breaker only or circuit breaker combined with a thermal overload relay if Isc > breaking capacity	230/240 V	aM	A	*	*	*	*	*	*	*
			gG	A	*	*	*	*	*	*	*
415 V		aM	A	*	*	*	*	125	125	125	
		gG	A	*	*	*	*	160	160	160	
440 V		aM	A	63	80	125	125	125	125	125	
		gG	A	80	100	160	160	160	160	160	
500 V		aM	A	63	63	63	63	80	80	80	
		gG	A	80	80	80	80	100	100	100	
690 V		aM	A	50	50	50	50	63	63	63	
		gG	A	63	63	63	63	80	80	80	
Use of circuit breakers without fuses				Minimum cable length (in metres) limiting the maximum short-circuit current to 35 kA maximum.							
Cable c.s.a.			mm ²	≤ 25	35	50	70	95	- ⁽²⁾	- ⁽²⁾	
Isc (rms) 3-phase, incoming (Ue = 415 V)	50 kA	m	5	6	8	10	13	- ⁽²⁾	- ⁽²⁾		
	45 kA	m	5	5	7	8	10	- ⁽²⁾	- ⁽²⁾		
	40 kA	m	5	5	5	5	8	- ⁽²⁾	- ⁽²⁾		
	37 kA	m	5	5	5	5	5	- ⁽²⁾	- ⁽²⁾		

* Fuse not required: breaking capacity Icn > Isc.

(1) As % of Icu.

(2) Please consult your Regional Sales Office.

TeSys protection components

Motor circuit breakers GV3P

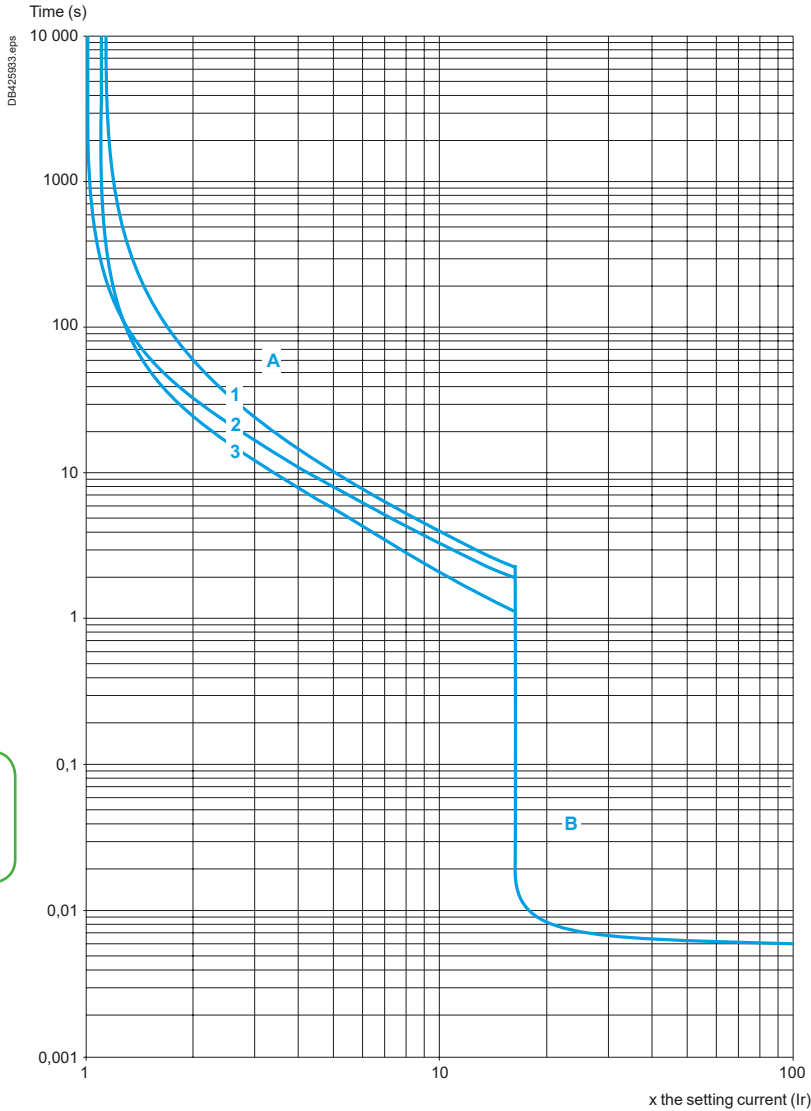
Breaking capacity of GV3P													
Motor circuit breaker type			GV3P										
		A	13	18	25	32	40	50	65	73	80		
Rating		A	13	18	25	32	40	50	65	73	80		
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	100	100	100	100	100	100	100	100	100	
		Ics % ⁽¹⁾		100	100	100	100	100	100	100	100	100	
	400/415 V	Icu	kA	100	100	100	100	50	50	50	50	50	
		Ics % ⁽¹⁾		100	100	100	100	100	100	100	60	60	
	440 V	Icu	kA	50	50	50	50	50	50	50	50	50	
		Ics % ⁽¹⁾		100	100	100	100	100	100	100	60	60	
	500 V	Icu	kA	12	12	12	12	12	12	12	12	12	
		Ics % ⁽¹⁾		50	50	50	50	50	50	50	50	50	
	690 V	Icu	kA	6	6	6	6	6	6	6	6	6	
		Ics % ⁽¹⁾		50	50	50	50	50	50	50	50	50	
	Associated fuses, if required if Isc > breaking capacity Icu	230/240 V	aM	A	*	*	*	*	*	*	*	*	*
			gG	A	*	*	*	*	*	*	*	*	*
415 V		aM	A	*	*	*	*	125	125	125	125	125	
		gG	A	*	*	*	*	160	160	160	160	160	
440 V		aM	A	63	80	125	125	125	125	125	125	125	
		gG	A	80	100	160	160	160	160	160	160	160	
500 V		aM	A	63	63	63	63	80	80	80	80	80	
		gG	A	80	80	80	80	100	100	100	100	100	
690 V		aM	A	50	50	50	50	63	63	63	63	63	
		gG	A	63	63	63	63	80	80	80	80	80	

* Fuse not required: breaking capacity Icn > Isc.
 (1) As % of Icu.

Circuit breakers

Tripping curves for GV3L combined with thermal overload relay LRD33

Average operating time at 20 °C without prior current flow



- 1 3 poles from cold state
- 2 2 poles from cold state
- 3 3 poles from hot state

- A Thermal overload relay protection zone
- B GV3L protection zone

Curves - TeSys GV3 - 5.5 to 45 kW

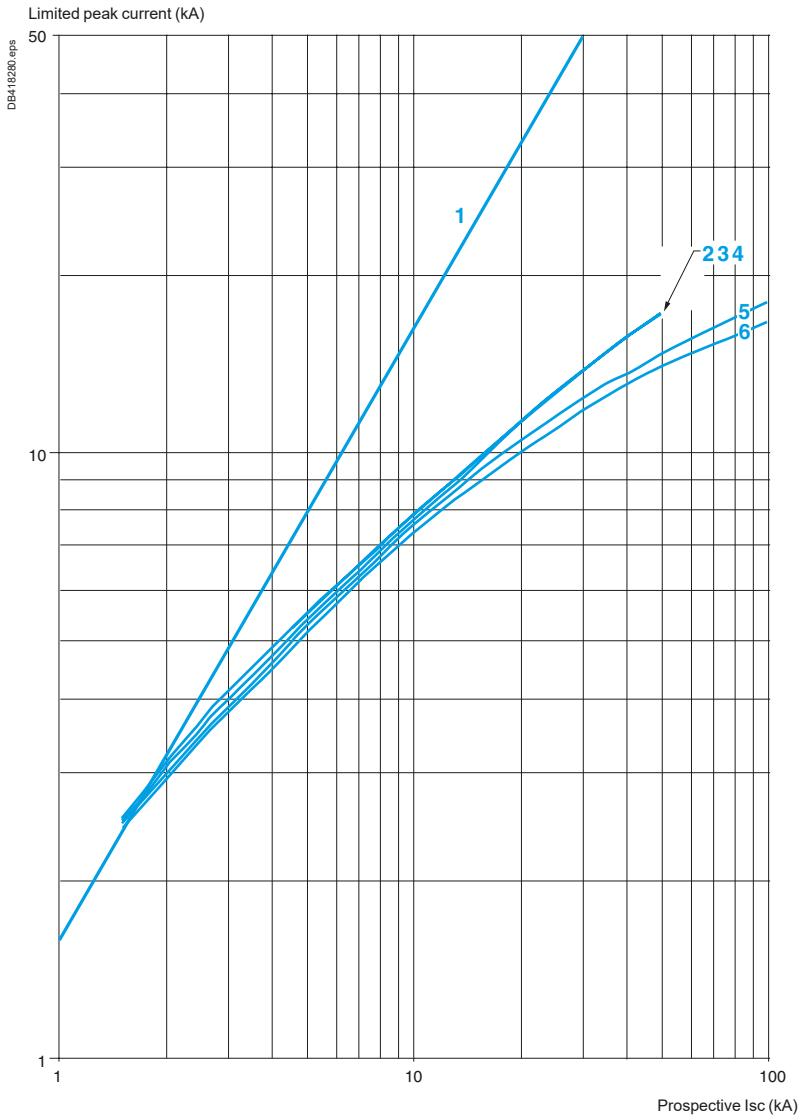
TeSys protection components

Magnetic motor circuit breakers GV3L

Current limitation on short-circuit for GV3L (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$



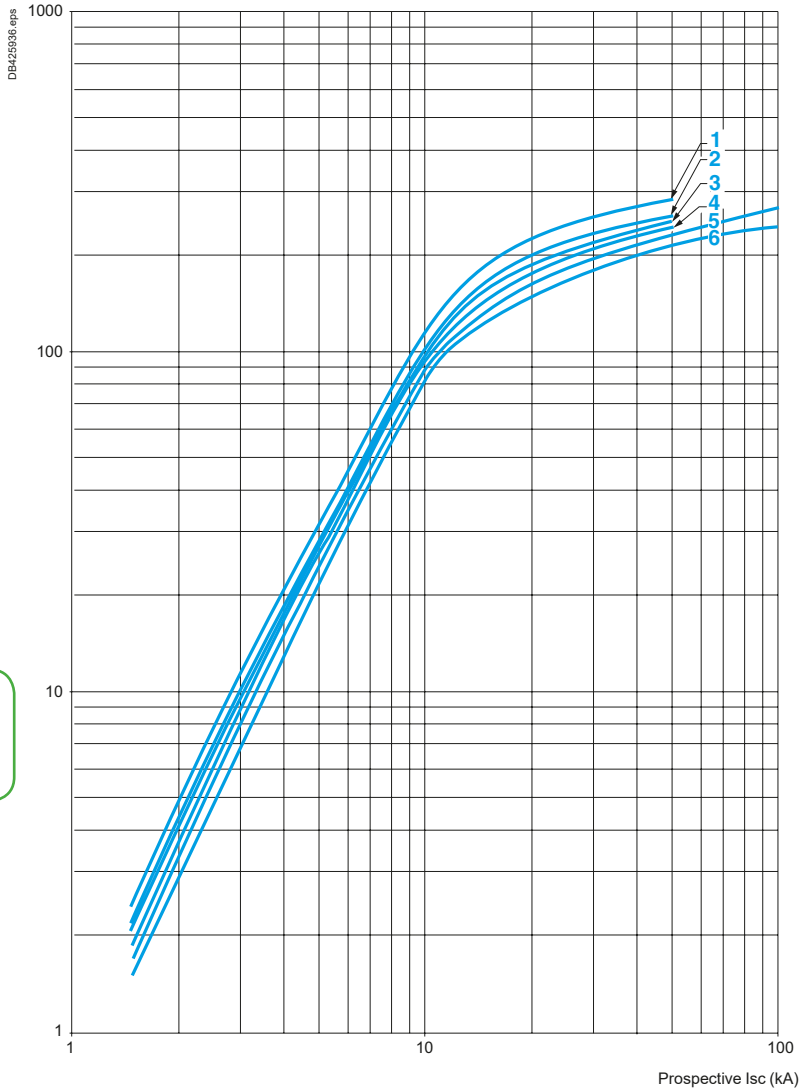
- 1 Maximum peak current
- 2 GV3L80 - GV3L73 - GV3L65
- 3 GV3L50
- 4 GV3L40
- 5 GV3L32
- 6 GV3L25

Thermal limit on short-circuit for GV3L

Thermal limit in A²s

Sum of I²dt = f (prospective I_{sc}) at 1.05 U_e = 435 V

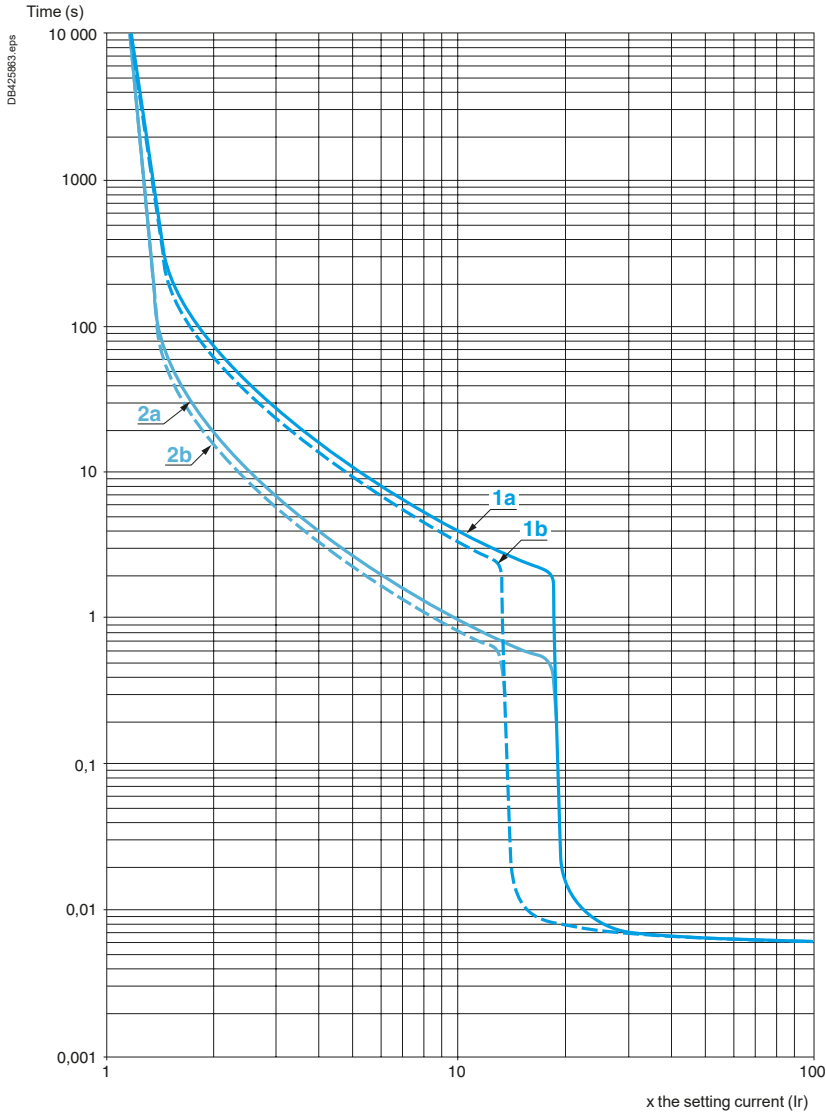
Sum of I²dt (A²s)



- 1 GV3L73 - GV3L80
- 2 GV3L65
- 3 GV3L50
- 4 GV3L40
- 5 GV3L32
- 6 GV3L25

Thermal-magnetic tripping curves

Average operating times at 20 °C related to multiples of the setting current



- 1a 3 poles from cold state (Ir mini.): GV3P
- 1b 3 poles from cold state (Ir maxi.): GV3P
- 2a 3 poles from hot state (Ir mini.): GV3P
- 2b 3 poles from hot state (Ir maxi.): GV3P

Circuit breakers

TeSys protection components

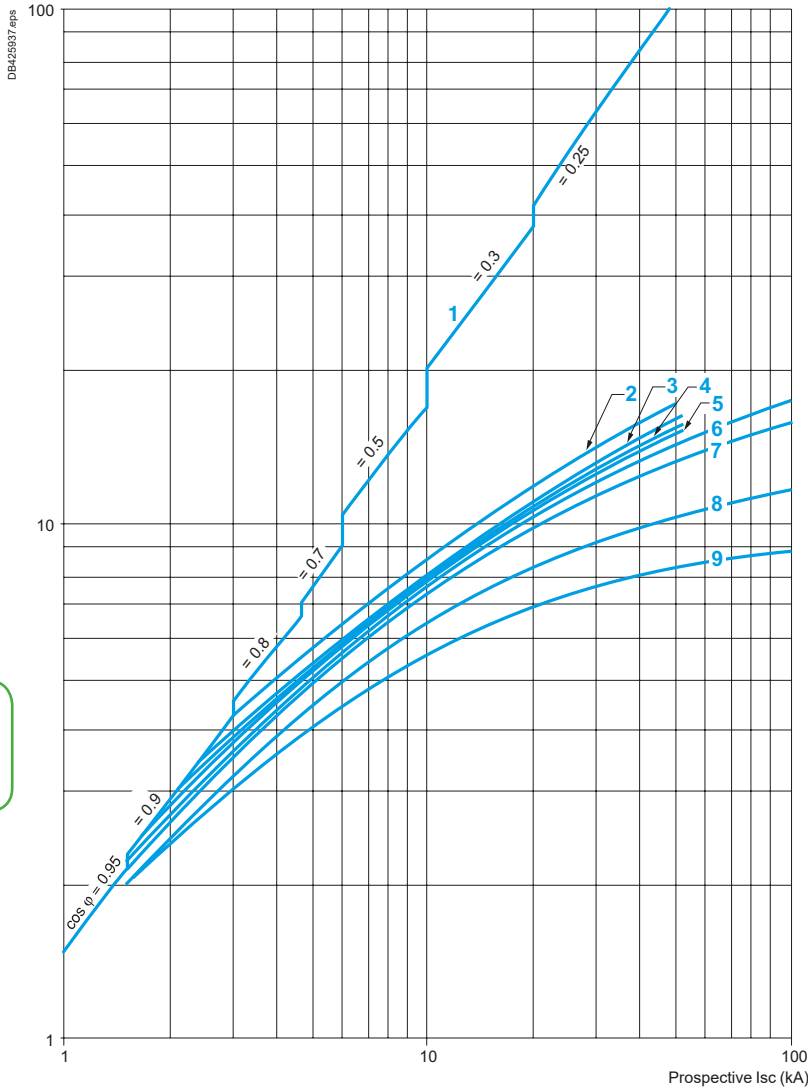
Thermal-magnetic motor circuit breakers GV3P

Current limitation on short-circuit (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)



- 1 Maximum peak current
- 2 70-80 A (GV3P80); 62-73 A (GV3P73)
- 3 48-65 A (GV3P65)
- 4 37-50 A (GV3P50)
- 5 30-40 A (GV3P40)
- 6 23-32 A (GV3P32)
- 7 17-25 A (GV3P25)
- 8 12-18 A (GV3P18)
- 9 9-13 A (GV3P13)

TeSys protection components

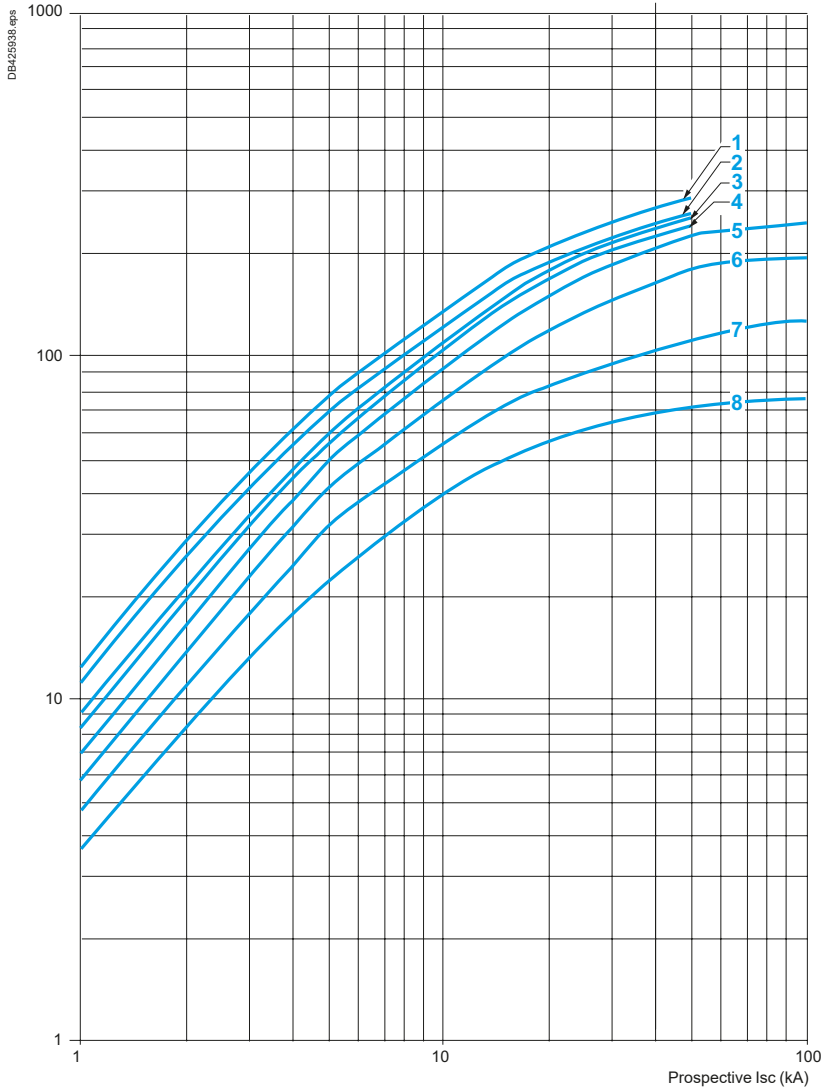
Thermal-magnetic motor circuit breakers GV3P

Maximum thermal limit on short-circuit

Thermal limit in kA²s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 V$

Sum of I^2dt (kA²s)



- 1 70-80 (GV3P80) - 62-73 (GV3P73)
- 2 48-65 A (GV3P65)
- 3 37-50 A (GV3P50)
- 4 30-40 A (GV3P40)
- 5 23-32 A (GV3P32)
- 6 17-25 A (GV3P25)
- 7 12-18 A (GV3P18)
- 8 9-13 A (GV3P13)

Circuit breakers

TeSys protection components

GV3 motor circuit breakers

Electric trips

Characteristics of GV3 electric trips				
Type of trip			GVAU●●● MN undervoltage trip	GVAS●●● MX shunt trip
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690	690
	Conforming to CSA C22-2 n°14, UL 508	V	600	600
Operational voltage (Ue)	Conforming to IEC 60947-1	V	0.85...1.1 U _c	0.7...1.1 U _c
Drop-out voltage		V	0.7...0.35 U _c	0.75...0.2 U _c
Inrush consumption	~ ≡	VA	12	14
Sealed consumption	~ ≡	VA	3.5	5
Operating time	Conforming to IEC 60947-1	ms	From the moment the voltage reaches its operational value until opening of the circuit breaker. 10...15	
On-load factor			100 %	
Cabling (spring connection)	Number of conductors		2 or 4	
	Solid cable	mm ²	1...2.5	
	Flexible cable without cable end	mm ² AWG	0.75...2.5	
	Flexible cable with cable end	mm ²	0.75...2.5	
Tightening torque		N.m	1.4 max	
Mechanical durability (C.O.: Close - Open)		C.O.	10000 (GV3 P and GV3 L)	

Accessories - TeSys GV3 - 5.5 to 45 kW

TeSys protection components

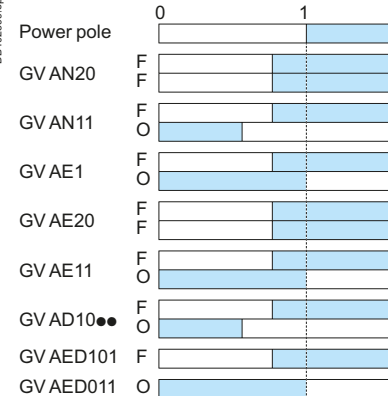
Motor circuit breakers GV3P, GV3L

Auxiliary contacts

Type of contacts			Instantaneous auxiliary GVAN, GVAD							Fault signalling GVAD, GVAM11 ⁽¹⁾				Instantaneous auxiliary GVAE							
Rated insulation voltage (Ui) (associated insulation coordination)	Conforming to IEC 60947-1	V	690							690				250 (690 in relation to main circuit)							
	Conforming to UL 60947-4-1, CSA C22.2 n° 60947-4-1	V	600							300				300							
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	6							2.5				2.5							
	Conforming to UL 60947-5-1, CSA C22.2 n° 60947-5-1	A	5							1				1							
Mechanical durability (C.O.: Close - Open)		C.O.	100 000							1000				100 000							
Operational power and current conforming to IEC 60947-5-1. a.c. operation			AC-15/100 000 C.O.							AC-14/1000 C.O.				AC-15/100 000 C.O.							
	Rated operational voltage (Ue)	V	48	110	230	380	415	440	500	690	24	48	110	230	240	24	48	110	230	240	
Operation	Operational power, normal conditions	VA	300	500	720	850	650	500	400	36	48	72	72	48	60	120	120				
	Occasional breaking and making capacities, abnormal conditions	kVA	3	7	13	15	13	12	9	0.22	0.3	0.45	0.45	0.48	0.6	1.27	2.4				
	Rated operational current (Ie)	A	6	4.5	3.3	2.2	1.5	1	0.6	1.5	1	0.5	0.3	2	1.25	1	0.5				
Operational power and current conforming to IEC 60947-5-1. d.c. operation			DC-13/100 000 C.O.							DC-13/1000 C.O.				DC-13/100 000 C.O.							
	Rated operational voltage (Ue)	V	24	48	60	110	240	–	–	24	48	60	–	24	48	60	–				
Operation	Operational power, normal conditions	W	140	240	180	140	120	–	–	24	15	9	–	24	15	9	–				
	Occasional breaking and making capacities, abnormal conditions	W	240	360	240	210	180	–	–	100	50	50	–	100	50	50	–				
	Rated operational current (Ie)	A	6	5	3	1.3	0.5	–	–	1	0.3	0.15	–	1	0.3	0.15	–				
Low power switching reliability of contact			GVAE: Number of failures for "n" million operating cycles (17 V-5 mA): = 10 ⁻⁶																		
Minimum operational conditions d.c. operation		V	17																		
		mA	5																		
Short-circuit protection			By GB2CB●● circuit breaker (rating according to operational current for Ue ≤ 415 V) or by gG fuse 10 A max											GB2CB06 or gG fuse 10 A max							
Cabling, screw clamp terminals	Number of conductors		1				2														
	Solid cable	mm²	1...2.5				1...2.5														
	Flexible cable without cable end	mm²	0.75...2.5				0.75...2.5														
	Flexible cable with cable end	mm²	0.75...1.5				0.75...1.5														
	Tightening torque	N.m	1.4 max				1.4 max														
Cabling, spring terminal connections	Flexible cable without cable end	mm²	GVAN only 0.75...2.5				0.75...2.5				–				0.75...1.5						

Operation of instantaneous auxiliary contacts

GV3P, GV3L



Operation of fault signalling contacts

GVAM11

Change of state following tripping on short-circuit.

GVAD10●● and GVAD01●●

Change of state following tripping on short-circuit, overload or undervoltage.

(1) For application example of fault signalling contact and short-circuit signalling contact.

(2) Add an RC circuit type **LA4 D** to the load terminals.

Characteristics - TeSys GV3 - 5.5 to 45 kW

TeSys protection components

Motor circuit breakers GV3

Accessories

Characteristics of 3-pole busbars GV3G●●●			
			GV3G●64
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690
Conventional thermal current (I _{th})	Conforming to IEC 60439-1	A	115
Rated operational current (I _e)		A	115
Permissible peak current (I _{peak})		kA	20
Permissible thermal limit (I ² t)		kA ² s	300
Degree of protection	Conforming to IEC 60529		IP 20
Terminal block			—

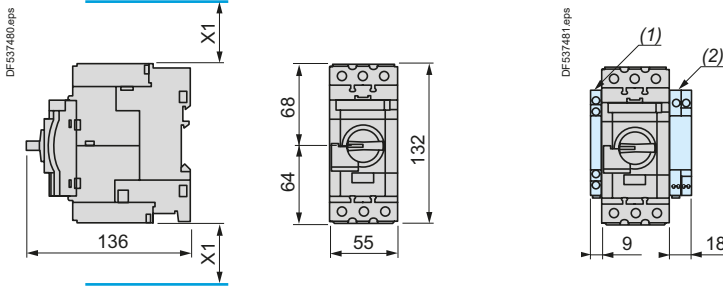
Dimensions, mounting - TeSys GV3 - 5.5 to 45 kW

TeSys protection components

Motor circuit breakers GV3L, GV3 P

GV3L, GV3P

Dimensions



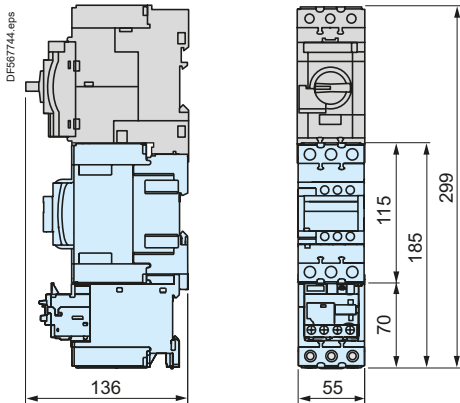
X1 = Electrical clearance (ISC max)
40 mm for $U_e \leq 500$ V, 50 mm for $U_e \leq 690$ V

(1) Blocks **GVAN●●**, **GVAD●●** and **GVAM11**.
(2) Blocks **GV3AU●●** and **GV3AS●●**.

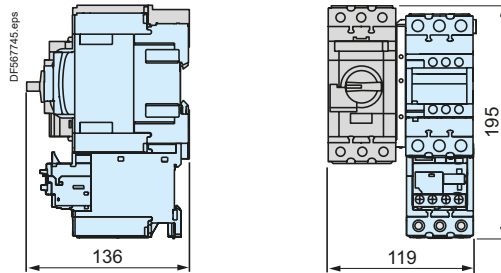
Note: Leave a space of 9 mm between 2 circuit breakers: either an empty space or side-mounting add-on contact blocks.
Side by side mounting is possible up to 40 °C.

Mounting

Mounting with Tesys contactor LC1D40A...D80A and relay LR3D313...380 (1) (2) (3)

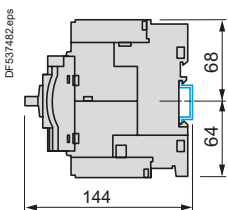


Side by side mounting with Tesys contactor LC1D40A...D73A (S-shape busbar system GV3S (4))

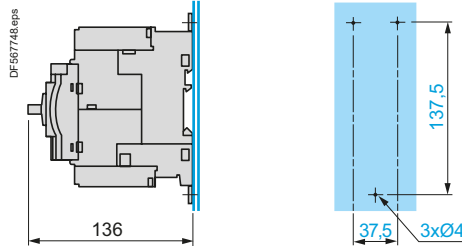


- (1) Mountings with c.b. up to **GV3L73**, **GV3P73**.
- (2) For **GV3L80**, **GV3P80** use cable between components for dissipating heat. Consult online datasheets for values
- (3) S-shape busbar system suitable up to 73 A.

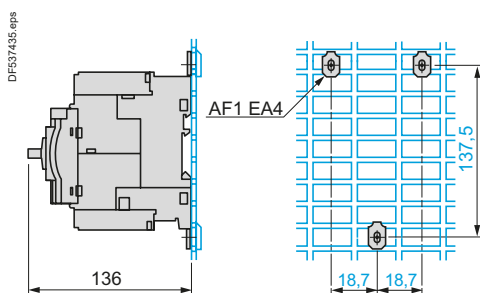
Mounting on rail AM1 DE200 or AM1 ED201



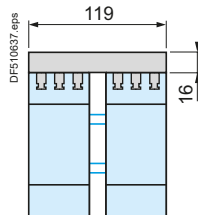
Panel mounting, using M4 screws



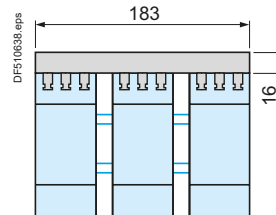
Mounting on pre-slotted plate AM1 PA



Set of busbars GV3G264



Set of busbars GV3G364



References:
pages B6/25 to B6/30

Characteristics:
pages B6/94 to B6/97

Curves:
pages B6/98 to B6/103

Schemes:
pages B6/109

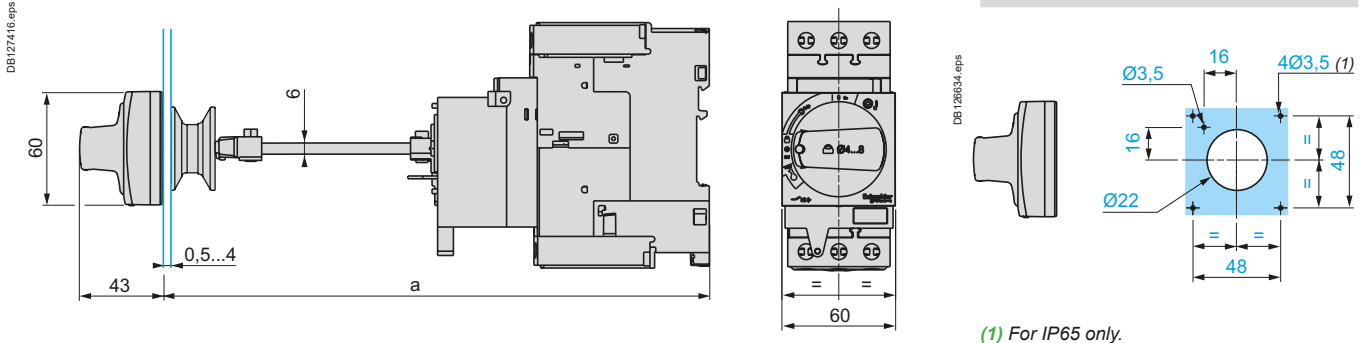
Dimensions, mounting - TeSys GV3 - 5.5 to 45 kW

TeSys protection components

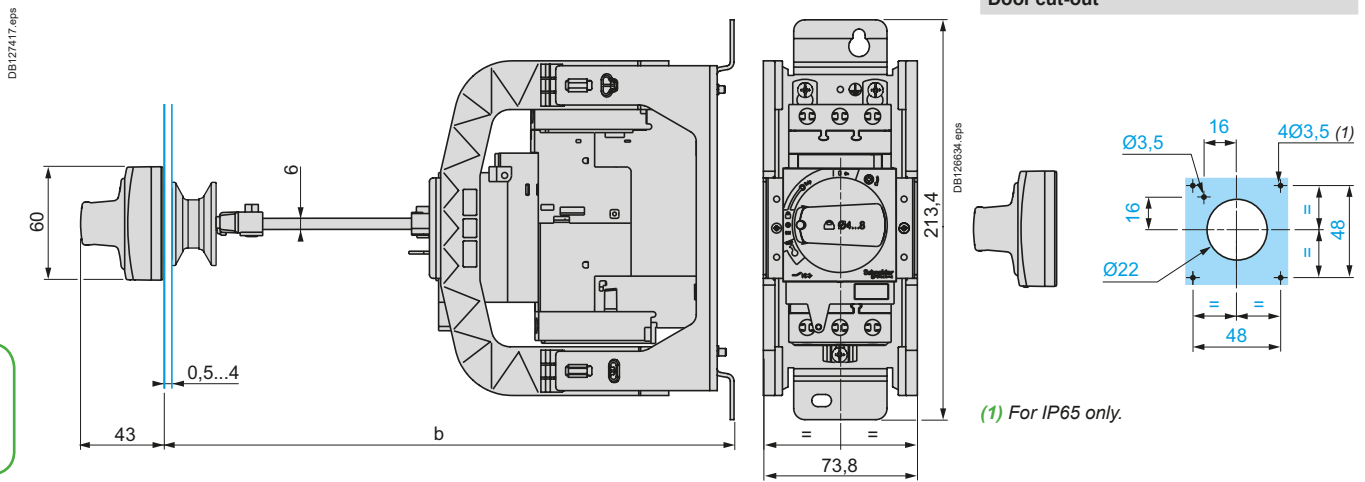
Magnetic motor circuit breakers GV3L, GV3P

Mounting

Mounting of external operator GV3APN01, GV3APN02 or GV3APN04 for motor circuit breakers GV3L



Mounting of external operator GVAPH03 for motor circuit breakers GV3L



Circuit breakers

	a		b	
	Mini	Maxi	Mini	Maxi
GV3APN●●	189	300	-	-
GV3APN●● + GVAPK12	300	481	-	-
GV3APN●● + GVAPH03	-	-	200	300
GV3APN●● + GVAPH03 + GVAPK12	-	-	300	492

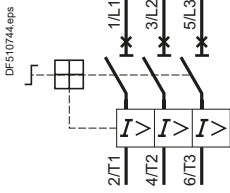
Schemes - TeSys GV3 - 5.5 to 45 kW

TeSys protection components

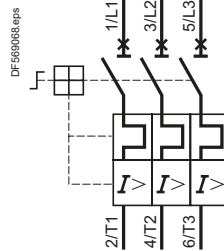
Motor circuit breakers GV3L, GV3 P

Schemes

GV3L●●

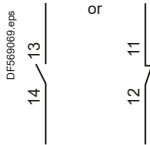


GV3P●●

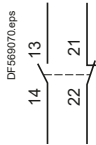


Front mounting add-on contact blocks Instantaneous auxiliary contacts

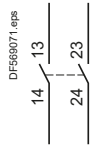
GVAE1



GVAE11

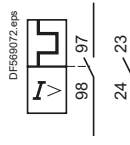


GVAE20

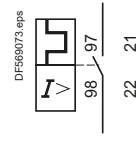


Front mounting add-on contact blocks Instantaneous auxiliary contacts and fault signalling contacts

GVAED101

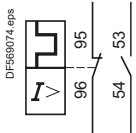


GVAED011

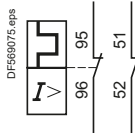


Side mounting add-on contact blocks Instantaneous auxiliary contacts and fault signalling contacts

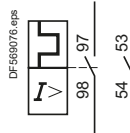
GVAD0110



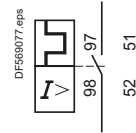
GVAD0101



GVAD1010

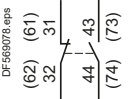


GVAD1001

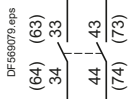


Instantaneous auxiliary contacts

GVAN11

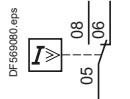


GVAN20



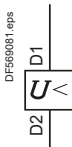
Short-circuit signalling contacts

GVAM11



Voltage trips

GVAU●●●



GVAS●●●

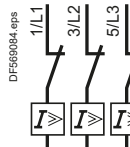


GVAX●●●

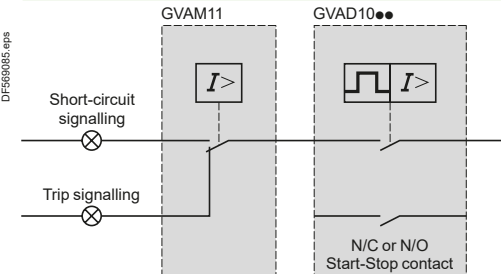


Current limiter

GV1L3

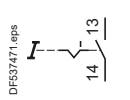


Use of fault signalling contact and short-circuit signalling contact

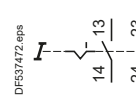


Start-Stop signalling contact blocks

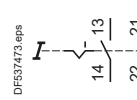
GK2AX10



GK2AX20

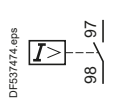


GK2AX50

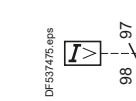


Fault signalling contact blocks

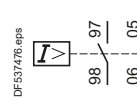
GK2AX12



GK2AX22



GK2AX52



Circuit breakers

TeSys GV4

0.25 to 55 kW - 1/2 to 60 HP



Circuit
breakers

Characteristics - TeSys GV4 - 0.25 to 55 kW

TeSys protection components

Motor circuit breakers TeSys GV4

Environment							
Circuit breaker type		GV4L	GV4LE	GV4P	GV4PE	GV4PEM	GV4PB
Conforming to standards		IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1		IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1, UL 60497-4-1, CSA 22.2 n° 60497-4-1		IEC/EN 60947-2, IEC/EN 60947-4-1	
Product certifications		CCC, EAC		CCC, EAC, CSA (cCSAus), ATEX		UL 489, CSA C22.2 n°5	
Climatic withstand		According to IACS E10					
Degree of protection (front face)	Conforming to IEC 60529	IP 40 front face except on connection area. Connection area: - IP20 with EverLink connector - IP40 with crimp lug connector and terminal shield.					
	Open mounted						
	In enclosure ⁽¹⁾	DRH = IP40 ERH = IP54 or IP65					
Shock resistance	Conforming to IEC 60068-2-27	15g - 11 ms		15g - 11 ms			
Vibration resistance	Conforming to IEC 60068-2-6	2.0 to 13.2 Hz and amplitude ±1 mm 13.2 to 100 Hz acceleration 0.7 g					
Ambient air temperature	Storage	°C	-50...+85				
	Operation	°C	-25...+70				
Temperature compensation		°C	Non applicable		-25...+60 ⁽²⁾		
Flame resistance	Conforming to IEC 60695-2-11	°C	960				
Maximum operating altitude		m	2000 without derating. Up to 5000 with derating				
Suitable for isolation	Conforming to IEC 60947-1 § 7-1-6		Yes				
Resistance to mechanical impact		J	IK07 (2J)				
Sensitivity to phase failure			No		Yes		
Technical characteristics							
Utilisation category	Conforming to IEC 60947-2		A		A		
	Conforming to IEC 60947-4-1		AC-3 ⁽³⁾				
Rated operational voltage (U _e)	Conforming to IEC 60947-2	V	690				
Rated insulation voltage (U _i)	Conforming to IEC 60947-2	V	800				
Rated voltage	Conforming to CSA C22-2 n°1, UL 60947-4-1	V	Non applicable		600		
Rated operational frequency	Conforming to IEC 60947-4-1, UL, CSA	Hz	50/60				
Rated impulse withstand voltage (U _{imp})	Conforming to IEC 60947-2	kV	8				
Total power dissipated per pole		W	6.1		4.6		
Mechanical durability (C.O.: Closing, Opening)		C.O.	40000				
Electrical durability for AC-3/415V duty (C.O.: Closing, Opening)	415 V In	C.O.	5 000				
Duty class (maximum operating rate)		C.O./h	25				
Maximum conventional rated thermal current (I _{th})	Conforming to IEC 60947-4-1	A	115				
Rated duty	Conforming to IEC 60947-4-1		Continuous duty				

(1) DRH = with Direct Rotary Handle

ERH = with Extended Rotary Handle

(2) For operation up to 70 °C, please consult your regional sales office.

(3) Up to 100 A.

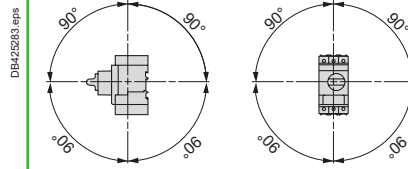
Characteristics - TeSys GV4 - 0.25 to 55 kW

TeSys protection components

Motor circuit breakers TeSys GV4

Mounting characteristics

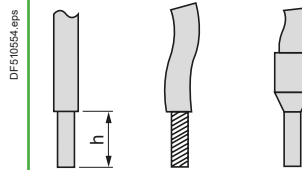
Operating position
Without derating, in relation to normal vertical mounting plane ⁽¹⁾



Power connection characteristics

Power connection by bare cables (EverLink connector)

Bare cables



Connection to screw clamp terminals (Max. number of conductors x c.s.a.)

Solid cable

mm²
AWG

Min.
Cu 1 x 1.5 + 1 x 2.5
Cu 2 x 14

Max.

Cu 1 x 70 + 1 x 95
Cu 1 x 2/0 + 1 x 3/0

Flexible cable without cable end

mm²
AWG

Cu 1 x 1.5 + 1 x 2.5
Cu 2 x 6

Cu 1 x 50 + 1 x 70
Cu 1 x 1/0 + 1 x 2/0

Flexible cable with cable end

mm²
AWG

Cu 1 x 1.5 + 1 x 2.5
Cu 2 x 6

Cu 1 x 50 + 1 x 70
Cu 1 x 1/0 + 1 x 2/0

Tightening torque

N.m

5 ≤ 10 mm² / 8 AWG
9 ≥ 16 mm² / 6 AWG

Stripping length (h)

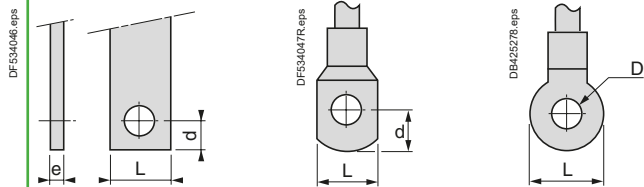
Solid cable

mm

20

Power connection by bars or lugs

Bars or lugs



Pitch

Without spreaders

mm

27

With spreaders

mm

35

Bars or cables with lugs

e

mm

≤ 8

L

mm

≤ 20

d

mm

≤ 7

D

mm

6.4

M6 Screws

Tightening torque

N.m

5 ≤ 10 mm² / 8 AWG
9 ≥ 16 mm² / 6 AWG

⁽¹⁾ When mounting on a vertical rail, fit a stop to prevent any slippage.

Circuit breakers

Characteristics - TeSys GV4 - 0.25 to 55 kW

TeSys protection components

Magnetic motor circuit breakers GV4L and GV4LE

Breaking capacity of GV4L and GV4LE																							
Circuit breaker type			GV4L●●●B GV4LE●●●B				GV4L●●●N GV4LE●●●N								GV4LE●●●S								
Rating			A	25	50	80	115	2	3.5	7	12.5	25	50	80	115	2	3.5	7	12.5	25	50	80	115
Breaking capacity conforming to IEC 60947-2	230/240 V	l _{cu}	kA	50				100								120							
		l _{cs} % ⁽¹⁾		100				100								100							
	400/415 V	l _{cu}	kA	25				50								100							
		l _{cs} % ⁽¹⁾		100				100								100							
	440 V	l _{cu}	kA	20				50								70							
		l _{cs} % ⁽¹⁾		100				100								100							
	500 V	l _{cu}	kA	10				25								30							
		l _{cs} % ⁽¹⁾		100				100								100							
	525 V	l _{cu}	kA	-				15								18							
		l _{cs} % ⁽¹⁾		-				100								100							
	690 V	l _{cu}	kA	-				8								10							
		l _{cs} % ⁽¹⁾		-				25								25							

⁽¹⁾ As % of l_{cu}.

Characteristics - TeSys GV4 - 0.25 to 55 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV4P, GV4PE, GV4PEM and GV4PB

Breaking capacity of GV4P, GV4PE, GV4PB●●●B																						
Circuit breaker type			GV4P●●●B GV4PE●●●B GV4PEM●●●B GV4PB●●●B				GV4P●●●N GV4PE●●●N GV4PEM●●●N GV4PB●●●N							GV4P●●●S GV4PE●●●S GV4PEM●●●S GV4PB●●●S								
Rating		A	25	50	80	115	2	3.5	7	12.5	25	50	80	115	2	3.5	7	12.5	25	50	80	115
Breaking capacity conforming to IEC 60947-2	230/240 V	Icu	kA	50				100							120							
		Ics % ⁽¹⁾		100				100							100							
	400/415 V	Icu	kA	25				50							100							
		Ics % ⁽¹⁾		100				100							100							
	440 V	Icu	kA	20				50							70							
		Ics % ⁽¹⁾		100				100							100							
	500 V	Icu	kA	10				25							30							
		Ics % ⁽¹⁾		100				100							100							
	525 V	Icu	kA	-				15							18							
		Ics % ⁽¹⁾		-				100							100							
	690 V	Icu	kA	-				8							10							
		Ics % ⁽¹⁾		-				25							25							
Breaking capacity conforming to UL 60947-4-1 and CSA 22.2 n° 60947-4-1	120 V		kA	35				65							100							
	208 V		kA	35				65							100							
	240 V		kA	35				65							100							
	480Y / 277 V		kA	18				35							65							
	480 V ⁽²⁾		kA	18				35							65							
	600Y / 347 V		kA	14				18							25							
	600 V ⁽²⁾		kA	14				18							25							

(1) As % of Icu.

(2) Except for MCC suitable for TAP conductor protection, in motor group installation and GV4PB.

Circuit breakers

Curves - TeSys GV4 - 0.25 to 55 kW

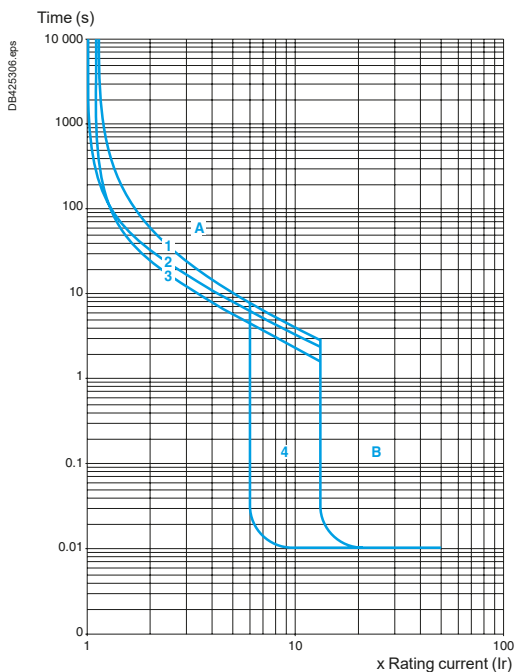
TeSys protection components

Magnetic motor circuit breakers GV4L, GV4LE

Tripping curves for GV4L and GV4LE combined with thermal overload relay LRD or LR9

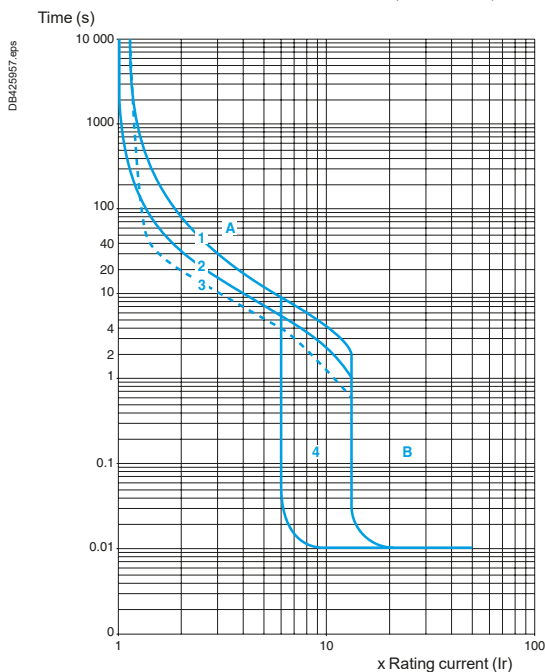
Average operating times at 20 °C related to multiples of the setting current

GV4L02 and GV4LE02 to 12 with LRD05 to LRD14,
GV4L80 and GV4LE80 with LRD3363



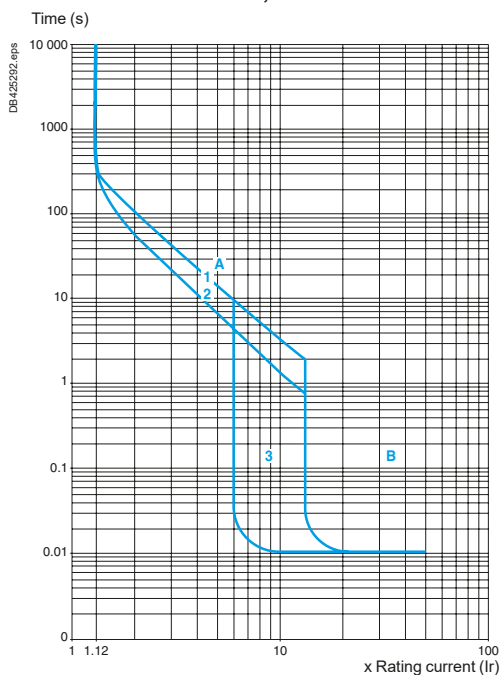
- 1 3 poles from cold state
 - 2 2 poles from cold state
 - 3 3 poles from hot state
 - 4 6 ... 14 Ir
- A Thermal overload relay protection zone
 - B GV4L protection zone

GV4L25 AND GV4LE25 with LRD 318, LRD325
GV4L50 AND GV4LE50 with LRD 332, LRD 340, LRD 350



- 1 3 poles from cold state
 - 2 2 poles from cold state
 - 3 3 poles from hot state
 - 4 6 ... 14 Ir
- A Thermal overload relay protection zone
 - B GV4L protection zone

GV4L115 and GV4LE115 with class 10 LR9F5367, LR9D5369
and class 20 LR9D5567, LR9F5569



- 1 Cold state curve
- 2 Hot state curve
- 3 6 ... 14 Ir

Circuit breakers

Curves - TeSys GV4 - 0.25 to 55 kW

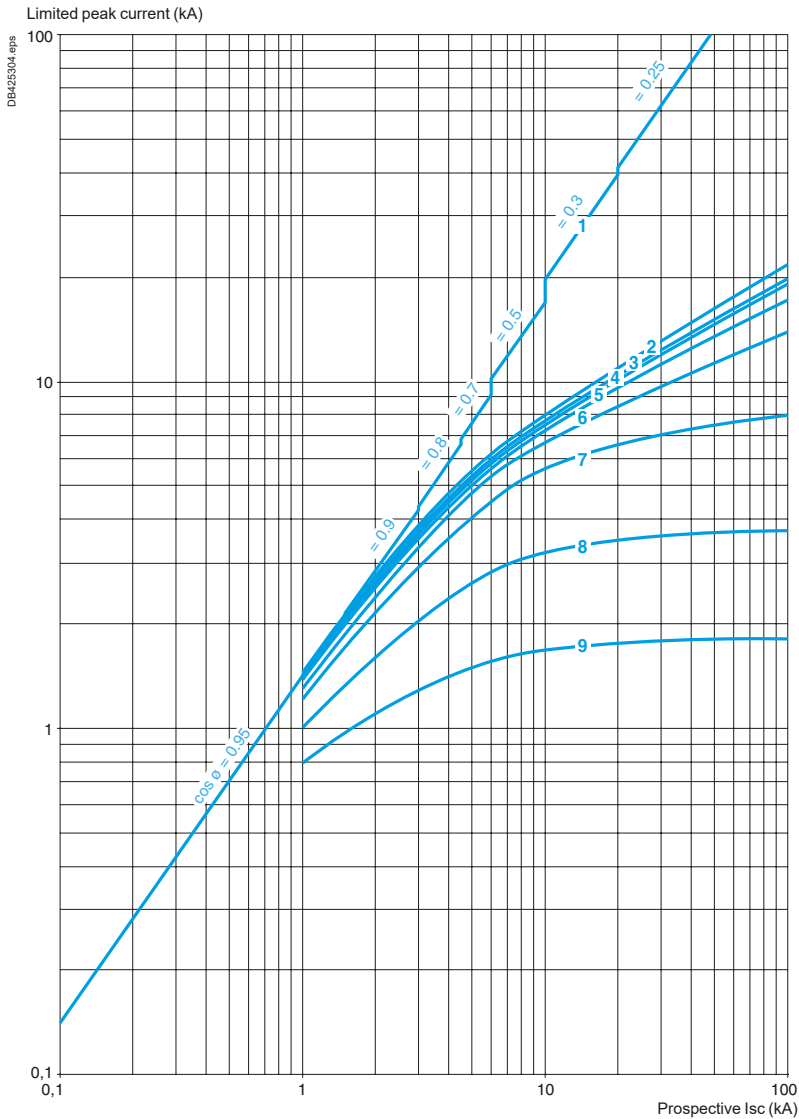
TeSys protection components

Magnetic motor circuit breakers GV4L, GV4LE

Current limitation on short-circuit for GV4L, GV4LE (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$



- 1 Maximum peak current
- 2 GV4L115
- 3 GV4L80
- 4 GV4L50
- 5 GV4L25
- 6 GV4L12
- 7 GV4L07
- 8 GV4L03
- 9 GV4L02

Curves - TeSys GV4 - 0.25 to 55 kW

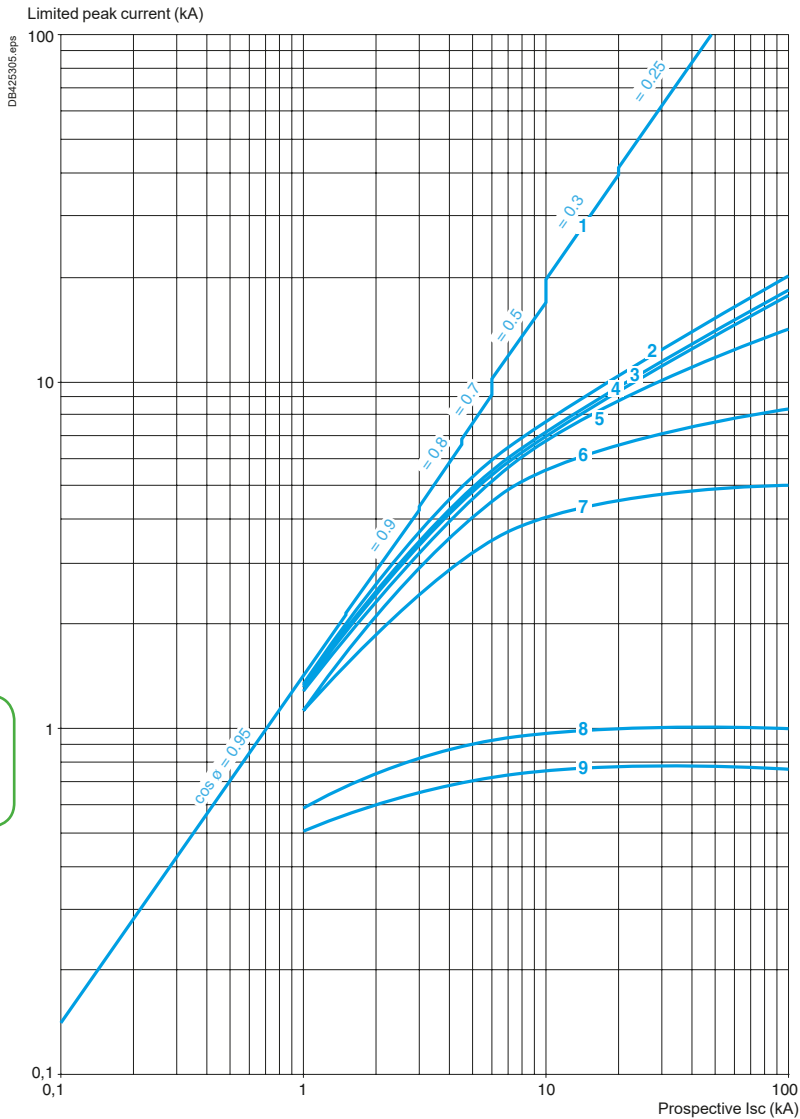
TeSys protection components

Magnetic motor circuit breakers GV4L, GV4LE

Current limitation on short-circuit for GV4L, GV4LE + thermal overload relay LRD or LR9 (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc})$ at $1.05 U_e = 435 \text{ V}$



- 1 Maximum peak current
- 2 GV4L115 + LR9D5367 or LR9F5367
- 3 GV4L80 + LRD3361
- 4 GV4L50 + LRD340
- 5 GV4L25 + LRD325
- 6 GV4L12 + LRD313
- 7 GV4L07 + LRD12
- 8 GV4L03 + LRD07
- 9 GV4L02 + LRD07

TeSys protection components

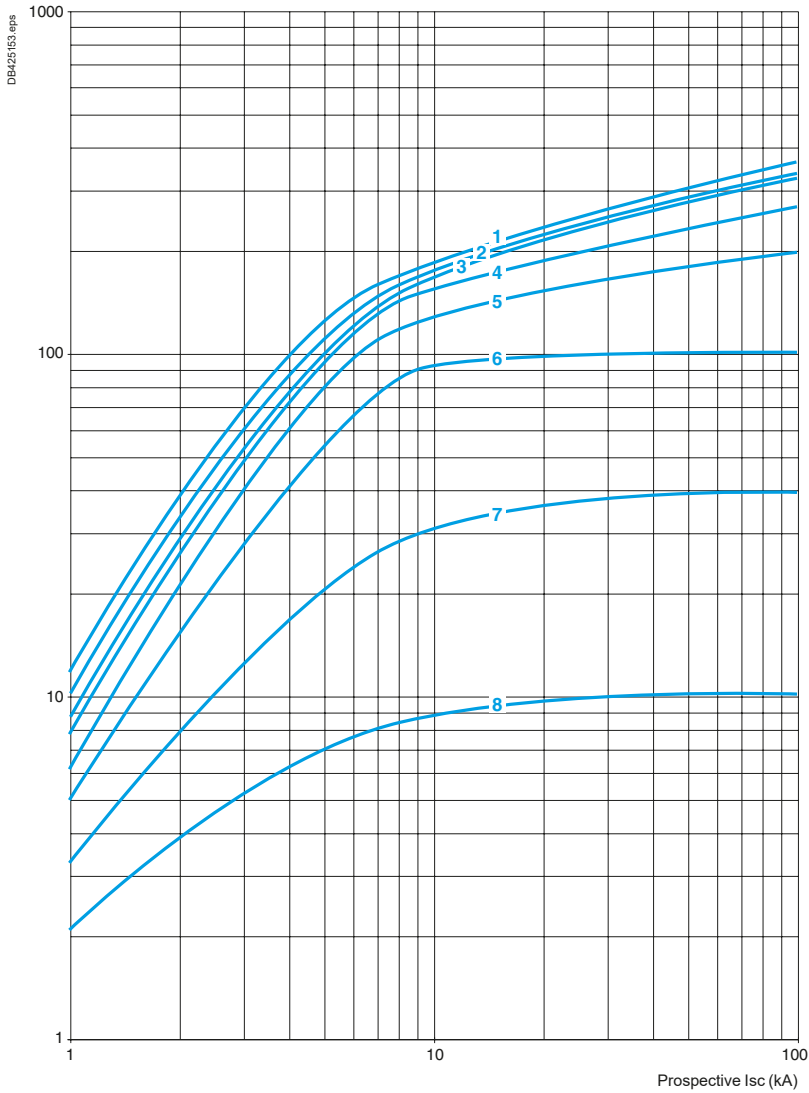
Magnetic motor circuit breakers GV4L, GV4LE

Thermal limit on short-circuit for GV4L, GV4LE

Thermal limit in A²s

Sum of I²dt = f (prospective I_{sc}) at 1.05 U_e = 435 V

Sum of I²dt (A²s)



- 1 GV4L115
- 2 GV4L80
- 3 GV4L50
- 4 GV4L25
- 5 GV4L12
- 6 GV4L07
- 7 GV4L03
- 8 GV4L02

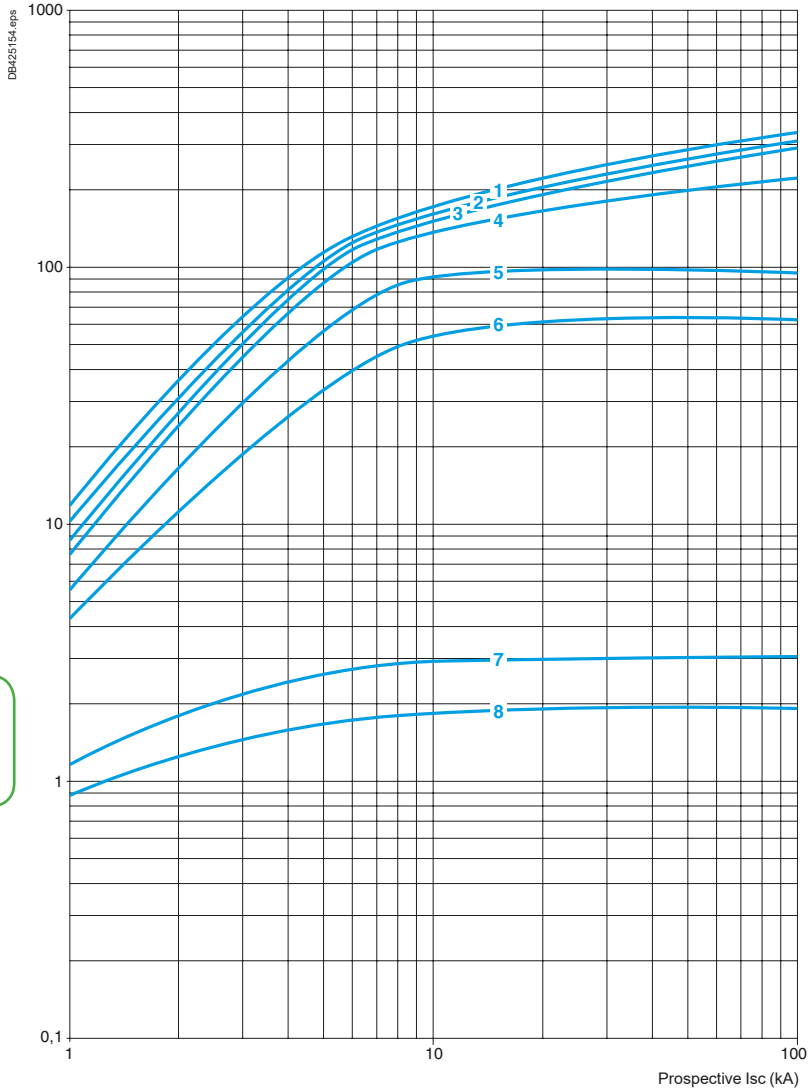
Circuit breakers

Thermal limit on short-circuit for GV4L, GV4LE + thermal overload relay LRD or LR9

Thermal limit in kA in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 V$

Sum of I^2dt (A²s)



Circuit breakers

- 1 GV4L115 + LR9D5367 or LR9F5367
- 2 GV4L80 + LRD3361
- 3 GV4L50 + LRD340
- 4 GV4L25 + LRD325
- 5 GV4L12 + LRD313
- 6 GV4L07+ LRD12
- 7 GV4L03+ LRD07
- 8 GV4L02 + LRD07

Curves - TeSys GV4 - 0.25 to 55 kW

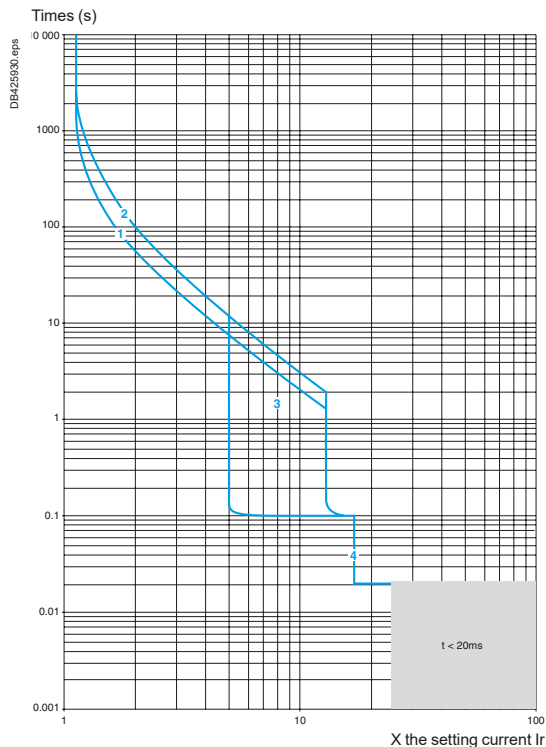
TeSys protection components

Thermal-magnetic motor circuit breakers GV4P, GV4PE, GV4PEM, GV4PB

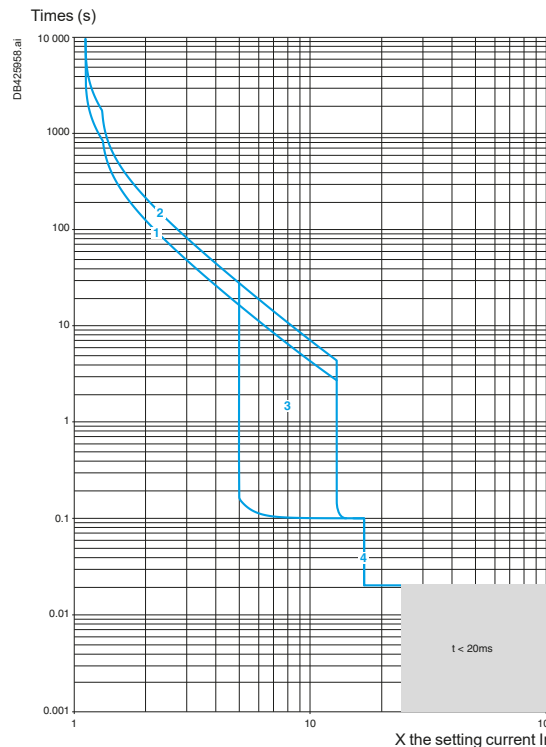
Thermal-magnetic tripping curves for GV4P, GV4PE, GV4PEM, GV4PB

Average operating times at 20 °C related to multiples of the setting current

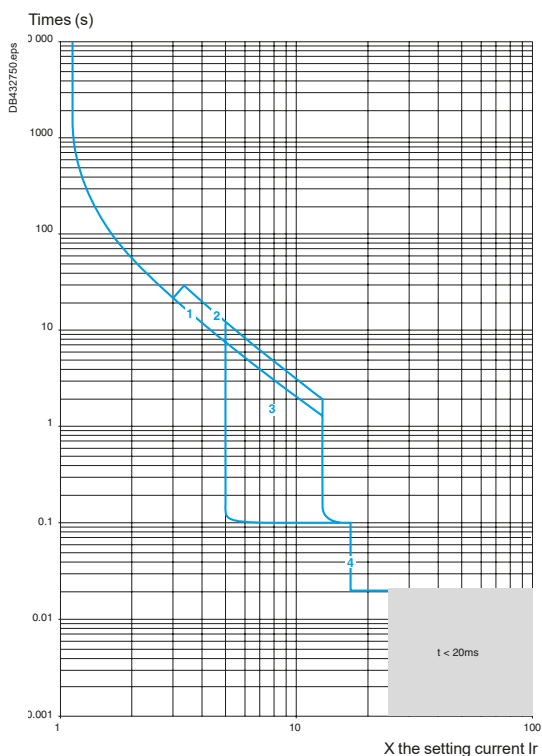
GV4P, GV4PE, GV4PEM



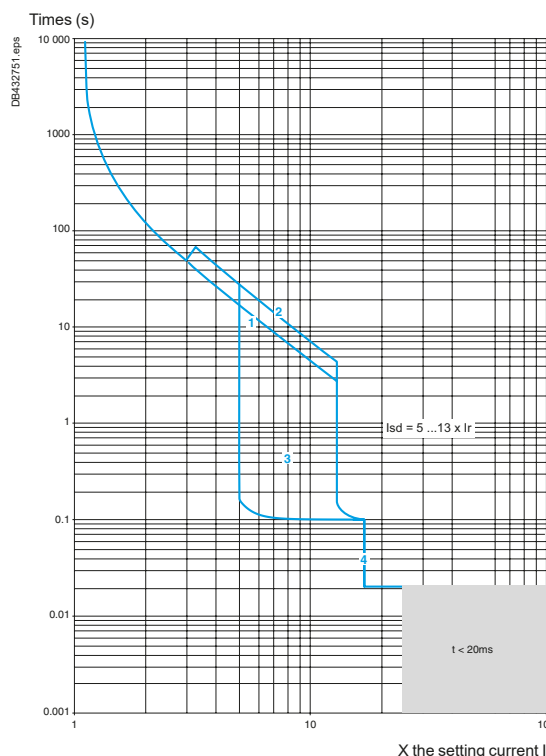
GV4P, GV4PE, GV4PEM



GV4PB



GV4PB



Hot state

- 1 Class 10
- 2 Class 20
- 3 Isd = 13 x Ir (GV4P - GV4PE); Isd = 5 ... 13 x Ir (GV4PEM - GV4PB)
- 4 li = 17 In

Cold state

- 1 Class 10
- 2 Class 20
- 3 Isd = 13 x Ir (GV4P - GV4PE); Isd = 5 ... 13 x Ir (GV4PEM - GV4PB)
- 4 li = 17 In

References:
pages B6/31 to B6/48

Characteristics:
pages B6/112 to B6/124

Dimensions:
pages B6/126 to B6/128

Circuit breakers

Curves - TeSys GV4 - 0.25 to 55 kW

TeSys protection components

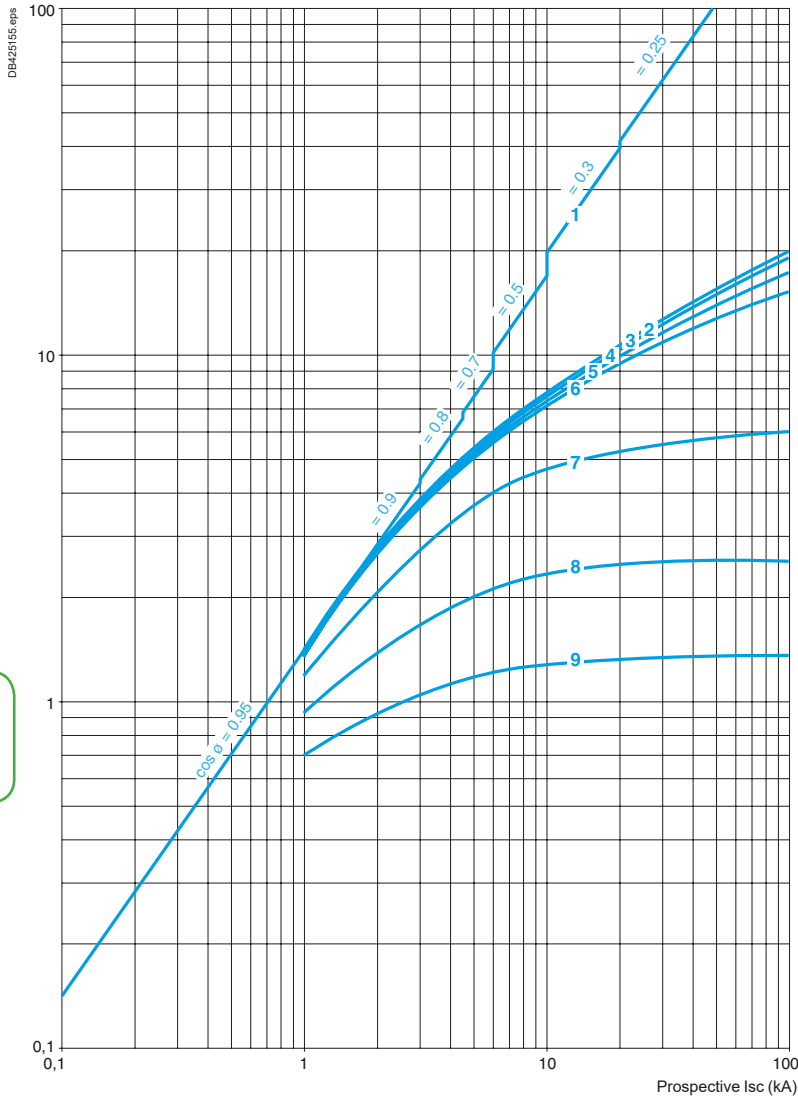
Thermal-magnetic motor circuit breakers GV4P, GV4PE, GV4PEM, GV4PB

Current limitation on short-circuit for GV4P, GV4PE, GV4PEM, GV4PB (3-phase 400/415 V)

Dynamic stress

$I_{peak} = f(\text{prospective } I_{sc}) \text{ at } 1.05 U_e = 435 \text{ V}$

Limited peak current (kA)



- 1 Maximum peak current
- 2 GV4P115
- 3 GV4P80
- 4 GV4P50
- 5 GV4P25
- 6 GV4P12
- 7 GV4P07
- 8 GV4P03
- 9 GV4P02

Curves - TeSys GV4 - 0.25 to 55 kW

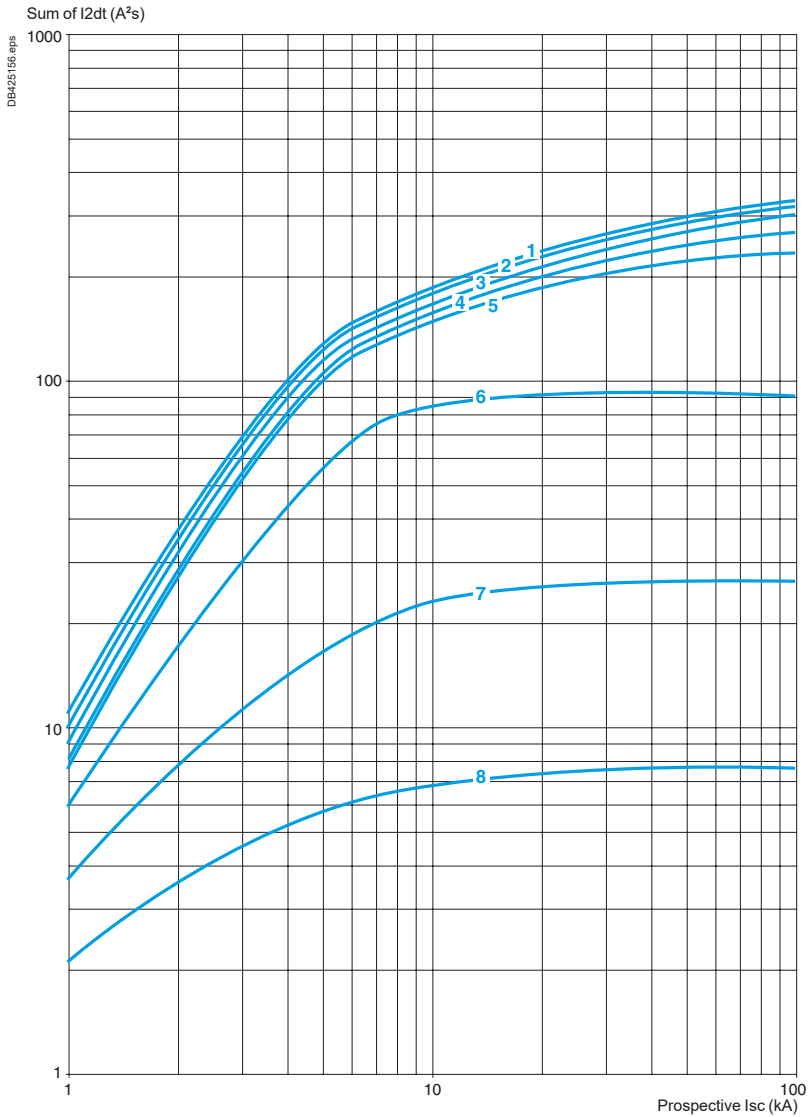
TeSys protection components

Thermal-magnetic motor circuit breakers GV4P, GV4PE, GV4PEM, GV4PB

Thermal limit on short-circuit for GV4P, GV4PE, GV4PEM, GV4PB

Thermal limit in kA²s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 V$



- 1 GV4P115
- 2 GV4P80
- 3 GV4P50
- 4 GV4P25
- 5 GV4P12
- 6 GV4P07
- 7 GV4P03
- 8 GV4P02

TeSys protection components

Thermal-magnetic motor circuit breakers

Voltage releases

Characteristics of electric trips			GV4AU●●● MN (undervoltage release)						
Type of trip			= Ue						
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V							
Operational voltage (Ue)	Conforming to IEC 60947-1	V	24 V AC/DC	48 V AC/DC	110-130 V AC 125 V DC	208-240 V 60 Hz 220-240 V 50 Hz	277 V 60 Hz	380-415 V 60 Hz	440-480 V 60 Hz
Inrush consumption	~ ~ ~	VA	< 7 VA < 2 W	< 7 VA < 2 W	< 7 VA < 2 W	< 7 VA	< 7 VA	< 7 VA	< 7 VA
Sealed consumption	~ ~ ~	VA	< 7 VA < 2 W	< 7 VA < 2 W	< 7 VA < 2 W	< 7 VA	< 7 VA	< 7 VA	< 7 VA
Operating time	Conforming to IEC 60947-1	ms	< 50						
On-load factor			100 %						
Cabling (spring connection)	Number of conductors		1 per terminal						
	Solid cable	mm ²	No solid cable allowed						
	Flexible cable without cable end	mm ² AWG	Cu 0.5 mm ² to 1.5 mm ² Cu 20AWG to 16AWG						
	Flexible cable with cable end	mm ²	No cable with cable end allowed						
Tightening torque		N.m	NA						
Mechanical durability (C.O.: Close - Open)		C.O.	20000						

Characteristics of electric trips			GV4AS●●● MX (Shunt trip)				
Type of trip			= Ue				
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V					
Operational voltage (Ue)	Conforming to IEC 60947-1	V	24 V AC/DC	48 V AC/DC	110-130 V AC 125 V DC	208-240 V 60 Hz 220-240 V 50 Hz	380-415 V 50 Hz 440-480 V 60 Hz
Inrush consumption	~ ~ ~	VA	< 6 VA < 10 W	< 6 VA < 10 W	< 6 VA < 10 W	< 6 VA	< 6 VA
Sealed consumption	~ ~ ~	VA	< 4 VA < 1 W	< 4 VA < 1 W	< 4 VA < 1 W	< 4 VA	< 4 VA
Operating time	Conforming to IEC 60947-1	ms	< 50				
On-load factor			100 %				
Cabling (spring connection)	Number of conductors		1 per terminal				
	Solid cable	mm ²	No solid cable allowed				
	Flexible cable without cable end	mm ² AWG	Cu 0.5 mm ² to 1.5 mm ² Cu 20AWG to 16AWG				
	Flexible cable with cable end	mm ²	No cable with cable end allowed				
Tightening torque		N.m	NA				
Mechanical durability (C.O.: Close - Open)		C.O.	20000				

TeSys protection components

Thermal-magnetic motor circuit breakers GV4L, GV4P, GV4PE, GV4PEM, GV4PB
Auxiliary contacts

Auxiliary contact characteristics														
Type of contacts			Auxiliary contact block GV4AE11						SDx contact module for GV4PEM, GV4PB, GV4ADM1111					
Rated insulation voltage(Ui)	Conforming to IEC 60947-1	V	690						250					
	Conforming to CSA C22-2 n°14 UL 508	V	-						-					
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	5						5					
	Conforming to CSA C22-2 n°14 UL 508	A	5						5					
Mechanical durability (C.O.: Close - Open)		C.O.	40 000						100 000					
Operational power and current conforming to IEC 60947-5-1 a.c. operation	Rated operational voltage (Ue)	V	24	48	110/127	230/240	380/440	660/690	48	110	230/240	380/415	440	690
	Operational power (AC12)	VA	120	240	635	1200	2200	3450			400			
	Occasional breaking and making capacities	kVA	1.2	2.4	6.35	12	22	34.5						
	Operational current (Ie)	AC-12	A	5	5	5	5	5	5					
		AC-15	A	5	5	4	3	2.5	0.1		3	1.5		
Operational power and current conforming to IEC 60947-5-1 d.c. operation	Rated operational voltage (Ue)	V	24	48	110	250			24	48	60	110	250	
	Operational power (DC12)	W	120	120	66	75			50					
	Occasional breaking and making capacities	W	1200	1200	660	750								
	Rated operational current (Ie)	DC-12	A	5	2.5	0.6	0.3							
		DC-13	A	2.5	1.2	0.35	0.05			2			0.22	0.11
DC-14		A	1	0.2	0.05	0.03								
Low power switching reliability of contact			10 ⁻⁶ at 17 V / 2 mA											
Minimum operational conditions d.c. operation		V	17											
		mA	2											
Short-circuit protection			5 A fuse gG conforming to IEC 60947-5-1											
Spring terminals cabling	Number of conductors		1 per hole											
	Solid cable	mm ²	-						0.2 to 1.5					
	Flexible cable without cable end	mm ²	0.5 to 1.5						0.2 to 2.5					
	Flexible cable with cable end	mm ²	-						0.25 to 1.5					

Circuit breakers

Dimensions, mounting - TeSys GV4 - 0.25 to 55 kW

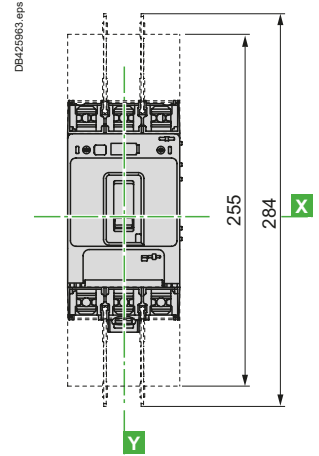
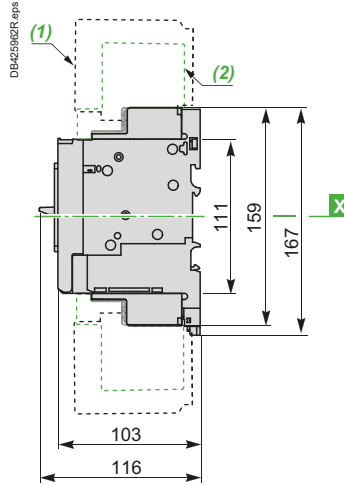
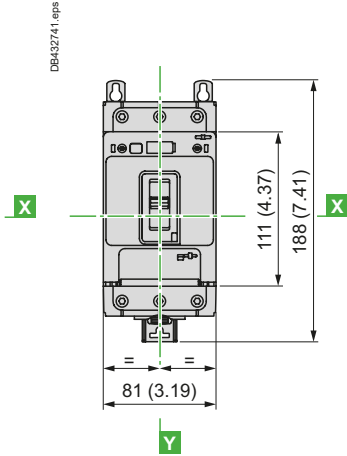
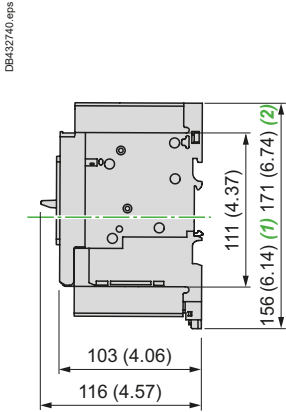
TeSys protection components

Motor circuit breakers TeSys GV4

GV4 with toggle: GV4LE, GV4PE, GV4PEM, GV4PB

With EverLink® connector

With crimp lug connector



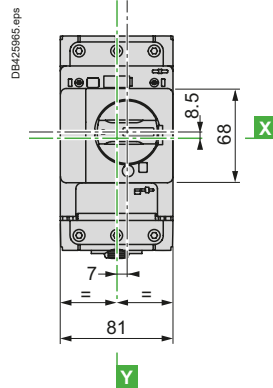
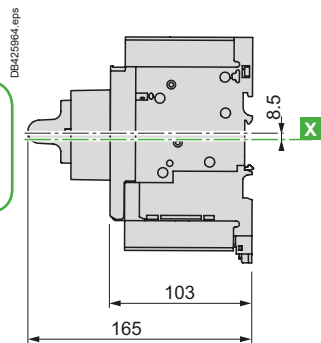
- (1) GV4LE, GV4PE, GV4PEM.
(2) GV4PB.

- (1) Interphases barriers.
(2) Long terminal shield.

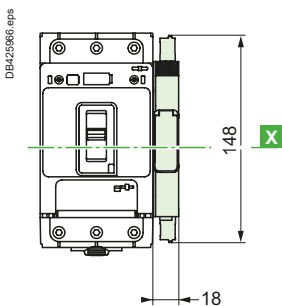
GV4 with rotary handle: GV4L, GV4P, or GV4LE, GV4PE, GV4PEM, GV4PB with GV4ADN01, GV4ADN02 direct mounting rotary handle

Dimensions

Circuit breakers



SDx module



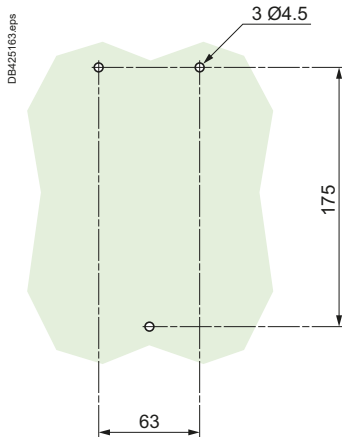
Dimensions, mounting - TeSys GV4 - 0.25 to 55 kW

TeSys protection components

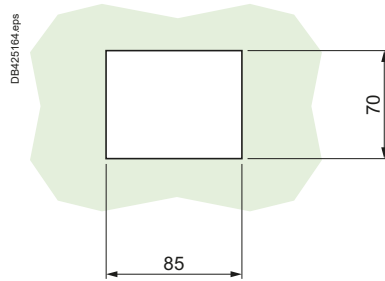
Motor circuit breakers TeSys GV4

GV4L, GV4P, GV4LE, GV4PE, GV4PEM, GV4PB

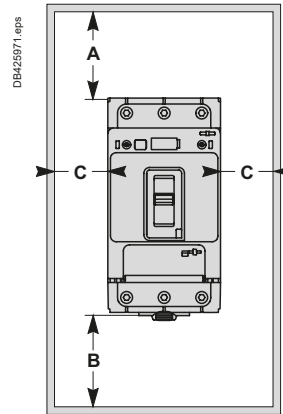
Panel mounting with M4 screws



Door cut-out for rotary handle



Minimum safety clearance



Toggle-type, rotary handle-type:
identical clearance values.

Safety clearance (mm)

	Painted sheet metal			Bare sheet metal		
	A	B	C	A	B	C
No accessory	30	0	0	40	0	5
Interphase barriers	0	0	0	0	0	5
Long terminal shield	0	0	0	0	0	5

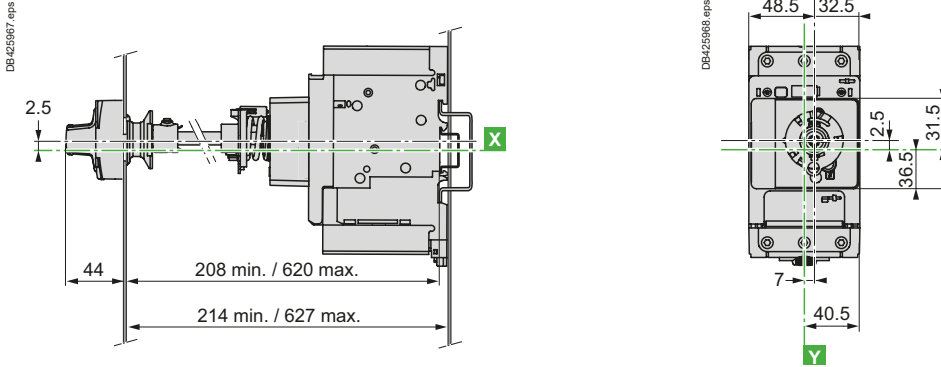
Dimensions, mounting - TeSys GV4 - 0.25 to 55 kW

TeSys protection components

Motor circuit breakers TeSys GV4

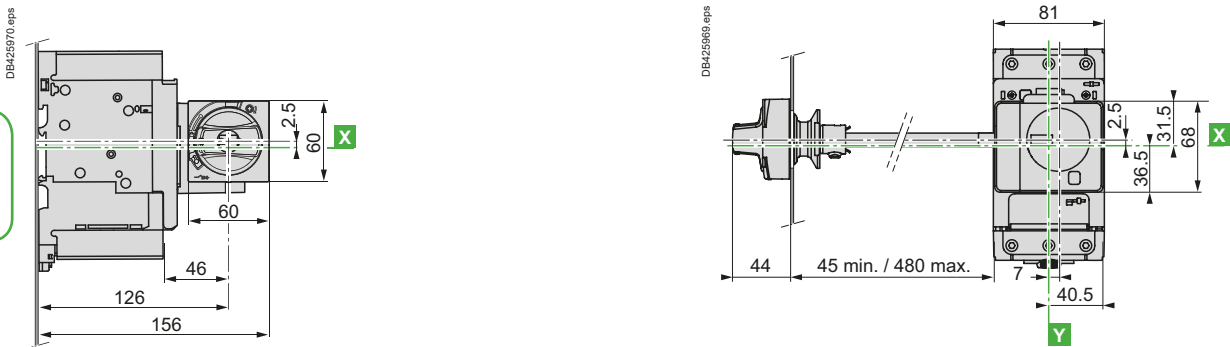
GV4 with extended rotary handle

Front extended rotary handle GV4APN01, GV4APN02, GV4APN04



Side (left or right) extended rotary handle LV426935, LV426936

Circuit breakers

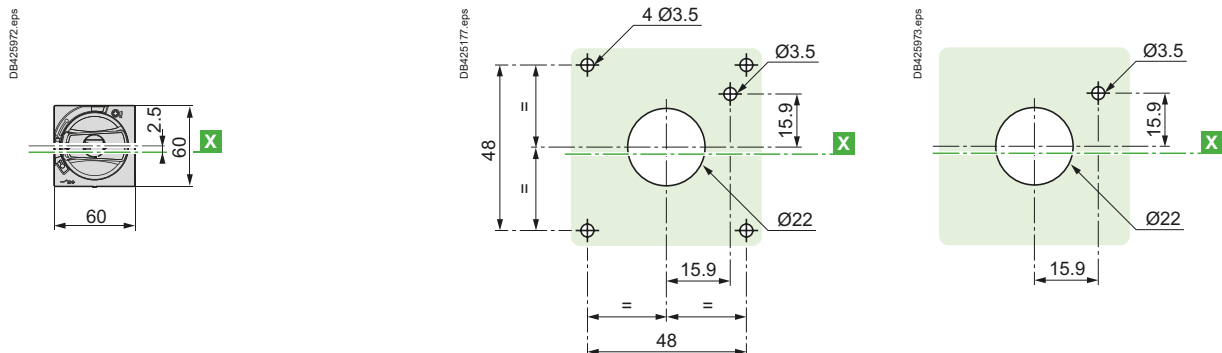


Front and side extended rotary handle, door/side panel cut-out

Front and side extended rotary handle

IP65, door panel cut-out

IP54, door/side panel cut-out



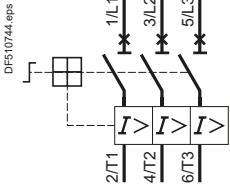
Schemes - TeSys GV4 - 0.25 to 55 kW

TeSys protection components

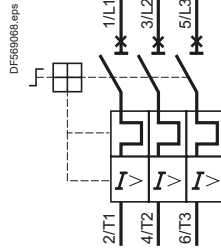
Motor circuit breakers TeSys GV4

Magnetic motor circuit breakers

GV4L, GV4LE



GV4P, GV4PE, GV4PEM, GV4PB



Accessories

Electrical trips

MN GV4AU●●●



MX GV4AS●●●



GV4AE11 auxiliary contacts

Used as OF contact

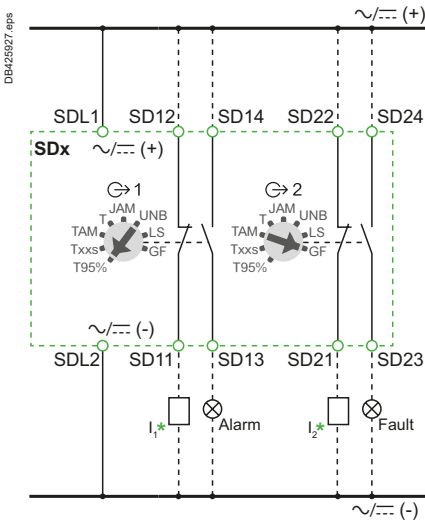


Used as SD contact



Side mounting add-on contact blocks

Instantaneous auxiliary contacts and fault signalling contacts



* I1, I2: PLC digital inputs - used as alarm inputs, as an example.

Circuit breakers

TeSys GV5/GV6

55 to 250 kW



Circuit
breakers

Characteristics - TeSys GV5 and GV6 - 55 to 250 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV5P and GV6P

Environment							
Circuit breaker type		GV5P/ GV6P					
Conforming to standards		IEC/EN 60947-4-1 IEC/EN 60947-2 UL 60947-4-1 CSA C22.2 n° 60947-4-1					
Product certifications		CB, CCC, UL, CSA, EAC, DNV-GL					
Climatic withstand		According to IACS E10					
Degree of protection (front face)	Conforming to IEC 60529	Bare circuit breaker with terminal shields Installed in switchboard	IP40 with direct rotary handle				
Shock resistance	Conforming to IEC 60068-2-27		15 gn -11 ms				
Vibration resistance	Conforming to IEC 60068-2-6		2.5 gn (25 Hz)				
Ambient air temperature	Storage in packing		°C	-50...+85			
	Operation	Open mounted	°C	-25... +70			
		In enclosure	°C	-25...+70			
Flame resistance	Conforming to IEC 60695-2-11		°C	960			
Maximum operating altitude			m	2000			
Suitable for isolation	Conforming to IEC 60947-1 § 7-1-6		Yes				
Resistance to mechanical impact			J	0.5			
Sensitivity to phase failure			Yes				
Technical characteristics							
Circuit breaker type		GV5P150	GV5P220	GV6P320	GV6P500		
Utilisation category	Conforming to IEC 60947-2		A				
	Conforming to IEC 60947-4-1		AC-3				
Rated operational voltage (Ue)	Conforming to IEC 60947-2		V	690			
Rated insulation voltage (Ui)	Conforming to IEC 60947-2		V	800			
Rated voltage	Conforming to UL 60947-4-1, CSA C22.2 n° 60947-4-1		V	600			
Rated operational frequency	Conforming to IEC 60947-4-1 UL, CSA		Hz	50/60			
Rated impulse withstand voltage (U imp)	Conforming to IEC 60947-2		kV	8			
Total power dissipated per pole			W	9.2	17.6	19.2	39.7
Mechanical durability (C.O.: Close, Open)			C.O.	40 000	20 000	15 000	15 000
Electrical durability for AC-3 duty	400/415 V (In)		C.O.	20 000	10 000	6 000	4 000
Duty class (maximum operating rate)			C.O./h	25			
Maximum conventional rated thermal current (Ith)	Conforming to IEC 60947-4-1		A	70...150	100...220	160...320	250...500
Rated duty	Conforming to IEC 60947-4-1		Continuous duty				

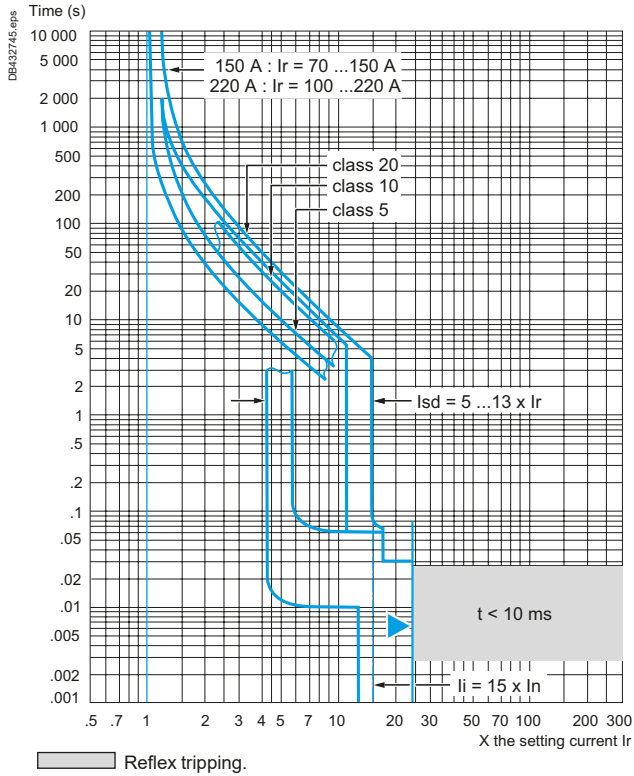
Circuit breakers

TeSys protection components

Thermal-magnetic motor circuit breakers GV5P and GV6P

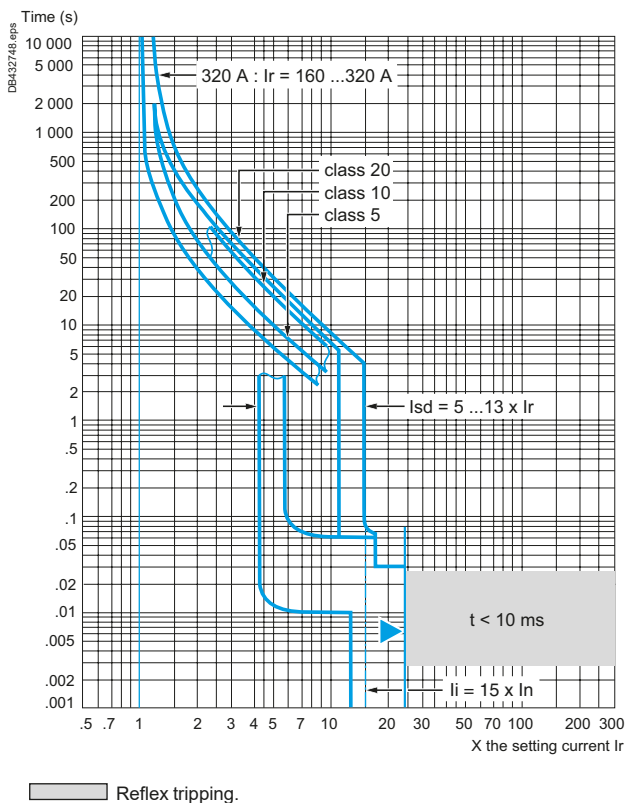
Thermal-magnetic tripping curves for GV5P

MicroLogic 2.2 M - 150/220 A

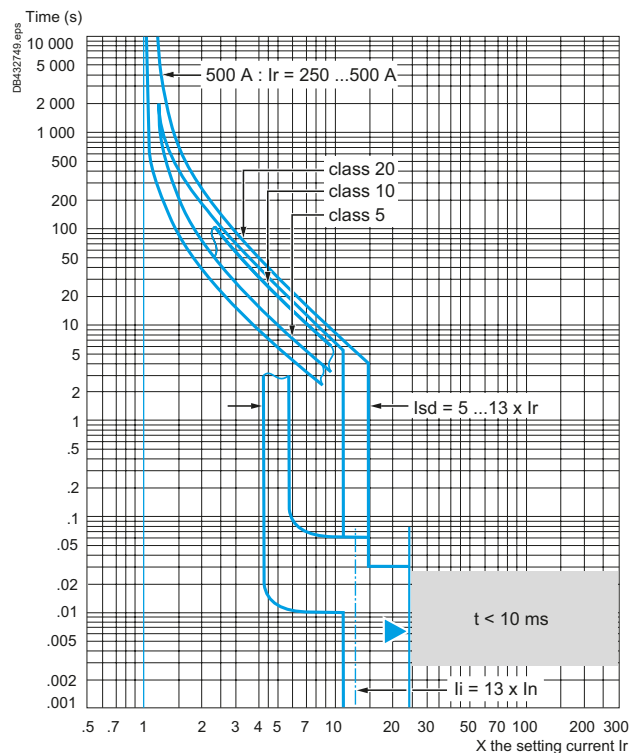


Thermal-magnetic tripping curves for GV6P

MicroLogic 2.3 M - 320 A



MicroLogic 2.3 M - 500 A



TeSys protection components

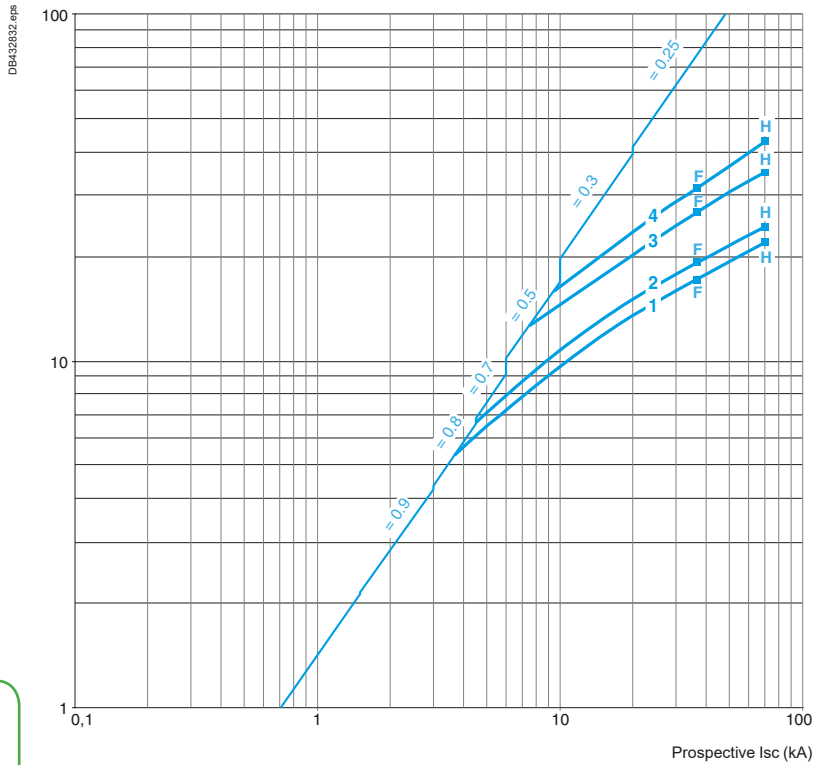
Thermal-magnetic motor circuit breakers GV5P and GV6P

Current limitation on short-circuit (3-phase 400 - 415 V)

Dynamic stress

For GV5P/6P●●●F/H type

Limited peak current (kA)



- 1 GV5P150F/H
- 2 GV5P220F/H
- 3 GV6P320F/H
- 4 GV6P500F/H

Circuit breakers

TeSys protection components

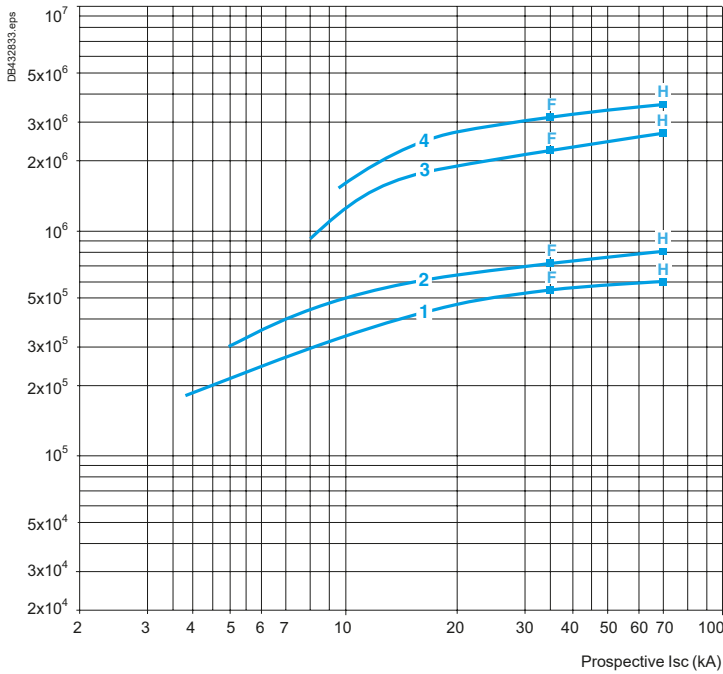
Thermal-magnetic motor circuit breakers GV5P and GV6P

Maximum thermal limit on short-circuit

Thermal limit in kA^2s in the magnetic operating zone

Sum of $I^2dt = f$ (prospective I_{sc}) at $1.05 U_e = 435 V$

Sum of I^2dt (A^2s)



- 1 GV5P150F/H
- 2 GV5P220F/H
- 3 GV6P320F/H
- 4 GV6P500F/H

TeSys protection components

GV5P/GV6P motor circuit breakers

Electric trips

Characteristics of GV5P/GV6P electric trips				
Type of trip			GV7AU●●● undervoltage trip	GV7AS●●● shunt trip
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	V	690	690
	Conforming to CSA C22-2 n°14, UL 508	V	600	600
Operational voltage (Ue)	Conforming to IEC 60947-1	V	0.85...1.1 Uc	0.7...1.1 Uc
Drop-out voltage		V	0.7...0.35 Uc	0.7...0.35 Uc
Inrush consumption	~	VA	< 10	
Sealed consumption	~	VA	< 5	
Operating time	Conforming to IEC 60947-1	ms	From the moment the voltage reaches its operational value until opening of the circuit breaker. < 50	
On-load factor			100 %	
Cabling (spring connection)	Number of conductors		1	
	Solid cable	mm ²	1.5	
	Flexible cable without cable end	mm ²	1.5	
	Flexible cable with cable end	mm ²	1	
Tightening torque		N.m	1.2	
Mechanical durability (C.O.: Close - Open)		C.O.	50 % of the mechanical durability of the circuit breaker.	

Characteristics of GV5P/GV6P thermal fault module				
Type of trip			LV429424 ⁽¹⁾	
Operational voltage (Ue)	Conforming to IEC 60947-1	V	24 to 415 V AC/ DC	
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	80 mA max.	

(1) LV429424 takes the place of the AU/AS electric trip coil and an auxiliary contact.

TeSys protection components

Thermal-magnetic motor circuit breakers GV5P and GV6P

Auxiliary contacts

Auxiliary contact characteristics													
Type of contacts			GV7AE11						GV7AB11				
Rated insulation voltage (Ui) (associated insulation coordination)	Conforming to IEC 60947-1	V	690						690				
Conventional thermal current (Ith)	Conforming to IEC 60947-5-1	A	6						5				
Mechanical durability (C.O.: Close - Open)		C.O.	50 000						50 000				
Operational current conforming to IEC 60947-5-1 a.c. operation	Rated operational voltage (Ue)	V	AC-12 or AC-15. 50 000 C.O.						AC-12 or AC-15. 50 000 C.O.				
		A	24	48	110	220/240	380/440	690	24	48	110	230/240	380/415
		Rated operational current (Ie)	AC-12	A	6	6	6	6	6	6	5	5	5
		A	6	6	5	4	2	0.1	3	3	2.5	2	1.5
Operational current conforming to IEC 60947-5-1 d.c. operation	Rated operational voltage (Ue)	V	DC-12 or DC-14. 50 000 C.O.				DC-12 or DC-14. 50 000 C.O.						
		A	24	48	110	250	24	48	110	250			
		Rated operational current (Ie)	DC-12	A	6	2.5	0.6	0.3	5	2.5	0.6	0.3	
		A	1	0.2	0.05	0.03	1	0.2	0.05	0.03			
Minimum operational conditions d.c. operation		V	24						4				
		mA	100						1				
Short-circuit protection			By GB2CB●● circuit breaker (rating according to operational current for Ue ≤ 415 V) or gG fuse, 10 A max.										
Cabling	Solid cable	mm ²	1 x 1.5 conductor						1 x 1.5 conductor				
	Flexible cable without cable end	mm ²	1 x 1.5 conductor						1 x 1.5 conductor				
	Flexible cable with cable end	mm ²	1 x 1.5 conductor						1 x 1.5 conductor				

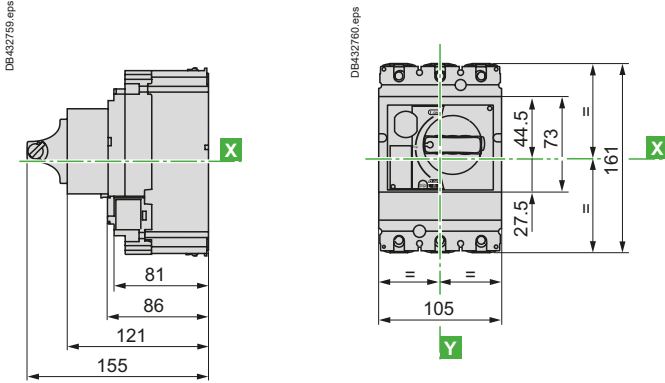
Dimensions, mounting - TeSys GV5 and GV6 - 55 to 250 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV5P and GV6P

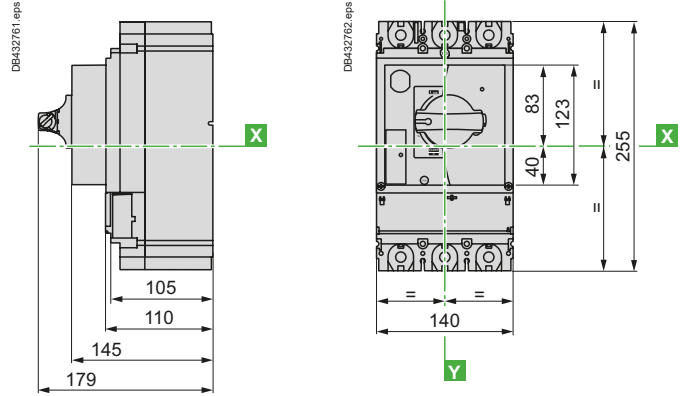
GV5P

Dimensions

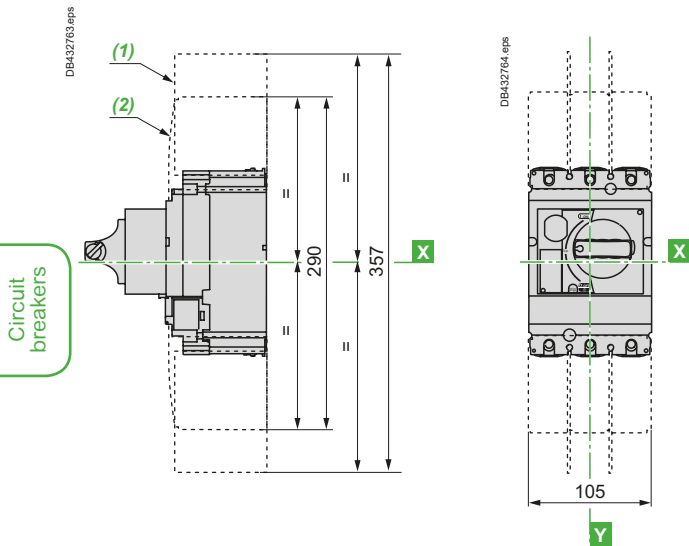


GV6P

Dimensions

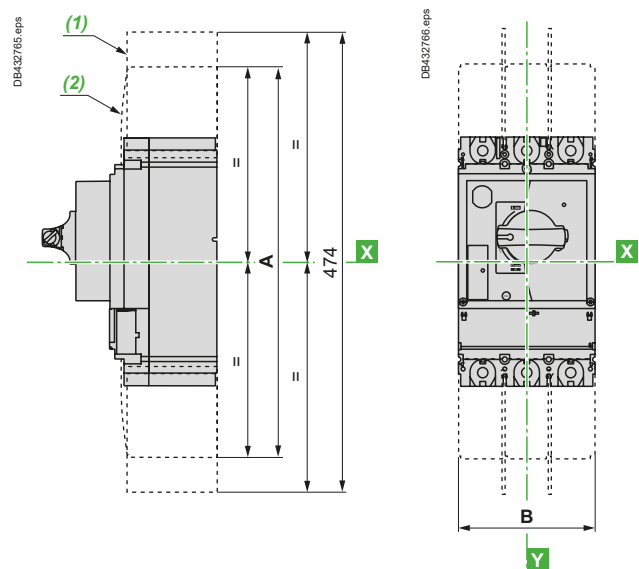


With long terminal shields or interphases barriers GV5P + GV7AC04/GV7AC01



- (1) Interphases barriers: **GV7AC04**.
- (2) Terminal shield: **GV7AC01**.

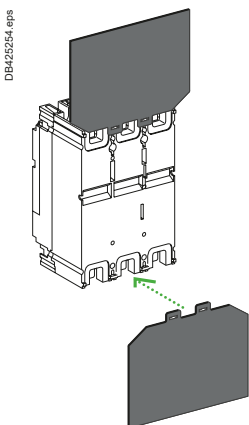
GV6P + LV432593 / LV432595 / LV432570



- (1) Interphases barriers: **LV432570**.
- (2) Terminal shield: **LV432593 (45mm) / LV432595 (52.5mm)**.

	A	B
LV432593	400	140
LV432595	480	157.5

Insulating screen



Motor circuit breaker	GV5P + GV7AC05	GV6P + LV432578
3P W x H x thickness (mm)	140 x 105 x 1	203 x 175 x 1.5

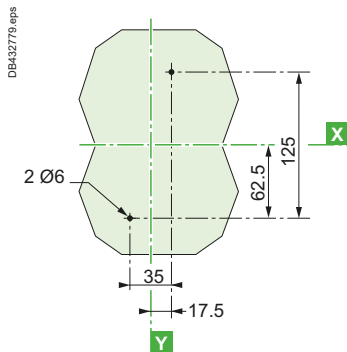
Dimensions, mounting - TeSys GV5 and GV6 - 55 to 250 kW

TeSys protection components

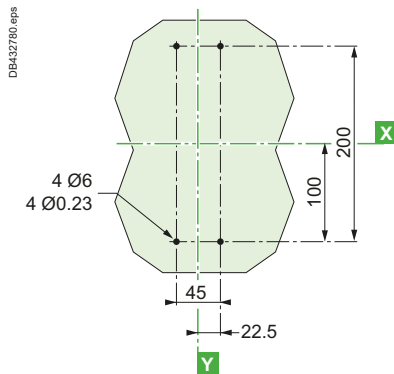
Thermal-magnetic motor circuit breakers GV5P and GV6P

GV5P/GV6P

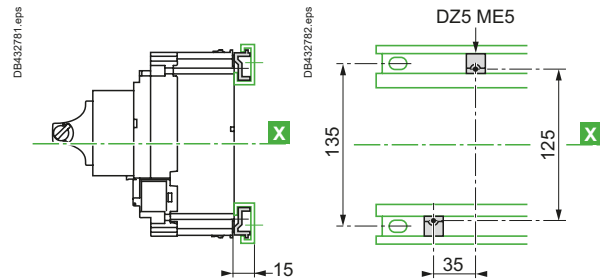
Panel mounting GV5



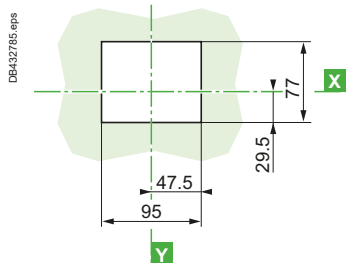
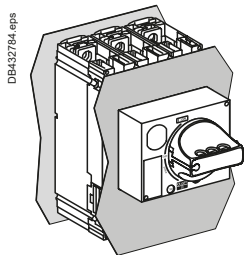
Panel mounting GV6



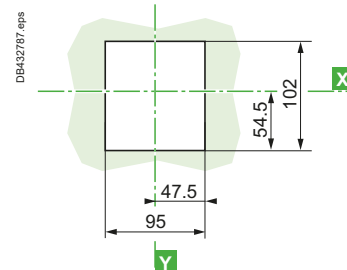
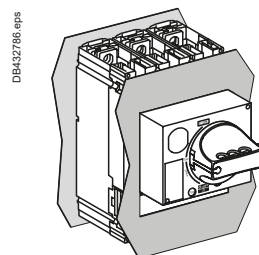
Mounting on 2 mounting rails for GV5 only



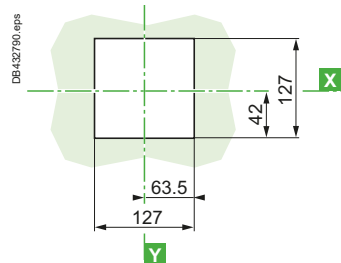
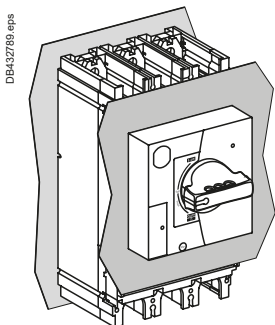
Door cut-out mounting GV5P



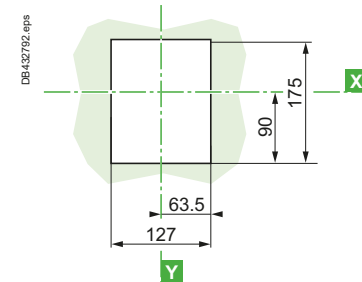
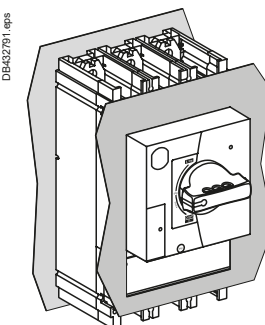
With access to trip unit



Door cut-out mounting GV6P



With access to trip unit



Circuit breakers

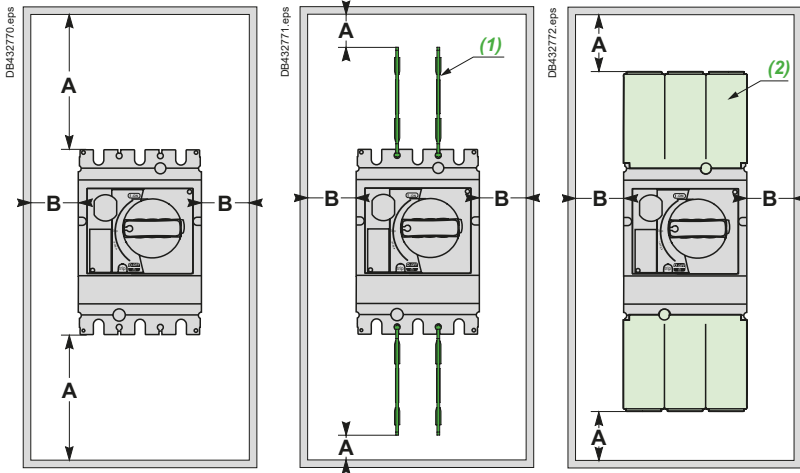
Dimensions, mounting - TeSys GV5 and GV6 - 55 to 250 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV5P and GV6P

GV5P

Minimum electrical clearance

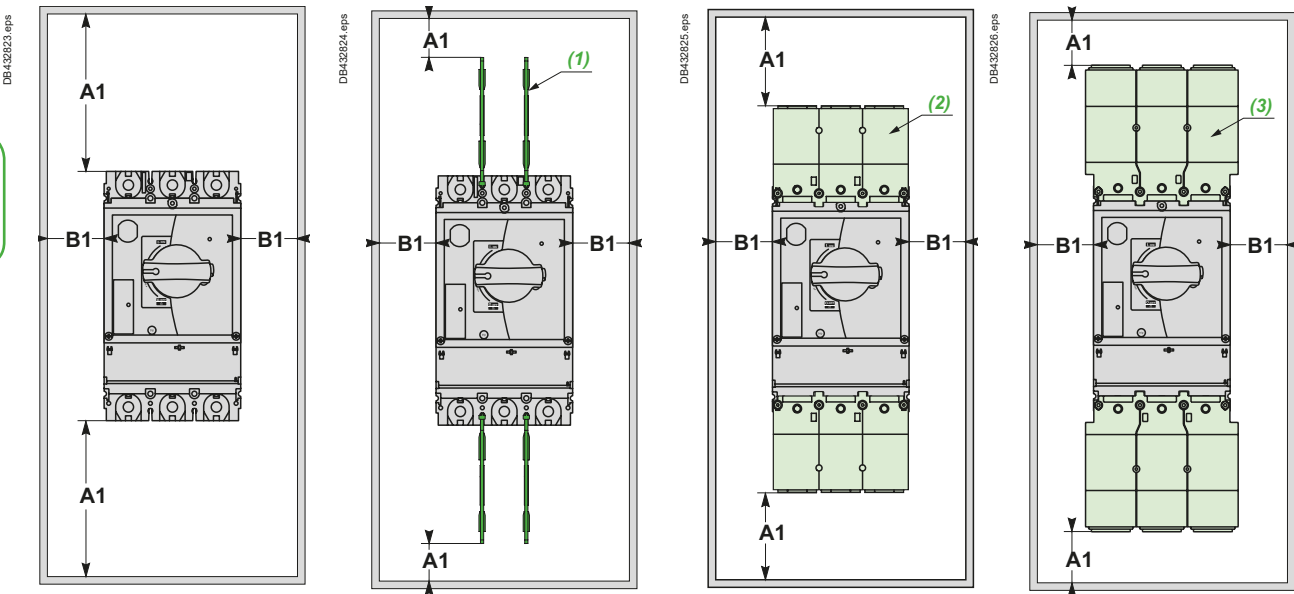


Clearance in mm

		Painted sheet metal		Bare metal plate	
		A	B	A	B
No accessories	$V \leq 500 V\sim$	30	0	40	20
	$V > 500 V\sim$	-	-	-	-
Interphases barriers ⁽¹⁾	$V \leq 500 V\sim$	0	0	10	20
	$V > 500 V\sim$	-	-	-	-
Terminal shield ⁽²⁾	$V \leq 500 V\sim$	0	0	10	10
	$V > 500 V\sim$	30	10	40	20

GV6P

Minimum electrical clearance



Clearance in mm

		Painted sheet metal		Bare sheet metal	
		A1	B1	A1	B1
No accessories	$V \leq 500 V\sim$	30	0	40	20
	$V > 500 V\sim$	-	-	-	-
Interphase barriers ⁽¹⁾	$V \leq 500 V\sim$	0	0	10	20
	$V > 500 V\sim$	-	-	-	-
Long terminal shield (LV432593) ⁽²⁾	$V \leq 500 V\sim$	30	0	40	10
	$V > 500 V\sim$	50	0	50	20
Long terminal shield (LV432595) ⁽³⁾	$V \leq 500 V\sim$	0	0	10	10
	$V > 500 V\sim$	30	0	30	20

Circuit breakers

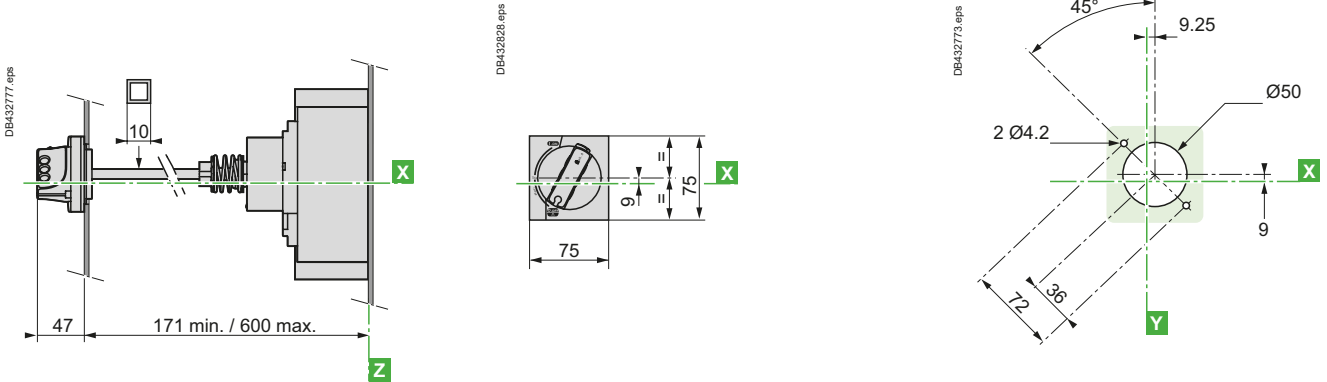
Dimensions, mounting - TeSys GV5 and GV6 - 55 to 250 kW

TeSys protection components

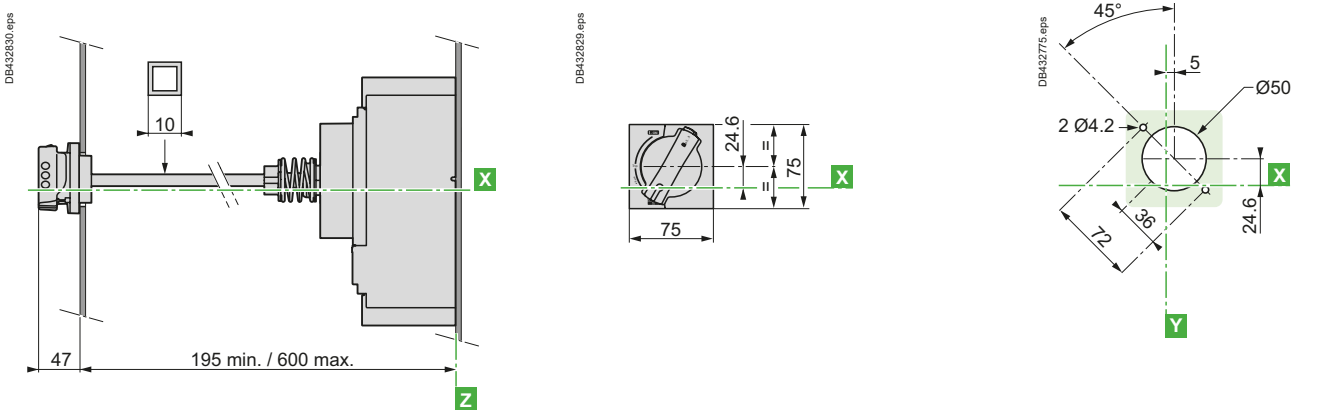
Thermal-magnetic motor circuit breakers GV5P and GV6P

GV5P/GV6P

GV5 with extended rotary handle GV7AP01/ GV7AP02

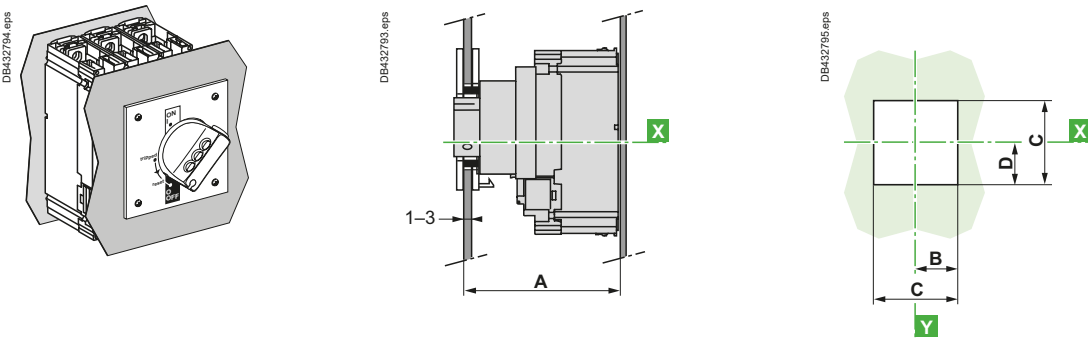


GV6 with extended rotary handle LV432598/ LV432600



GV5P/GV6P

MCC type direct rotary handle



	A	B	C	D
150/220 A	125 ±2	50	100	41
320/500 A	149 ±2	72.5	145	51

Circuit breakers

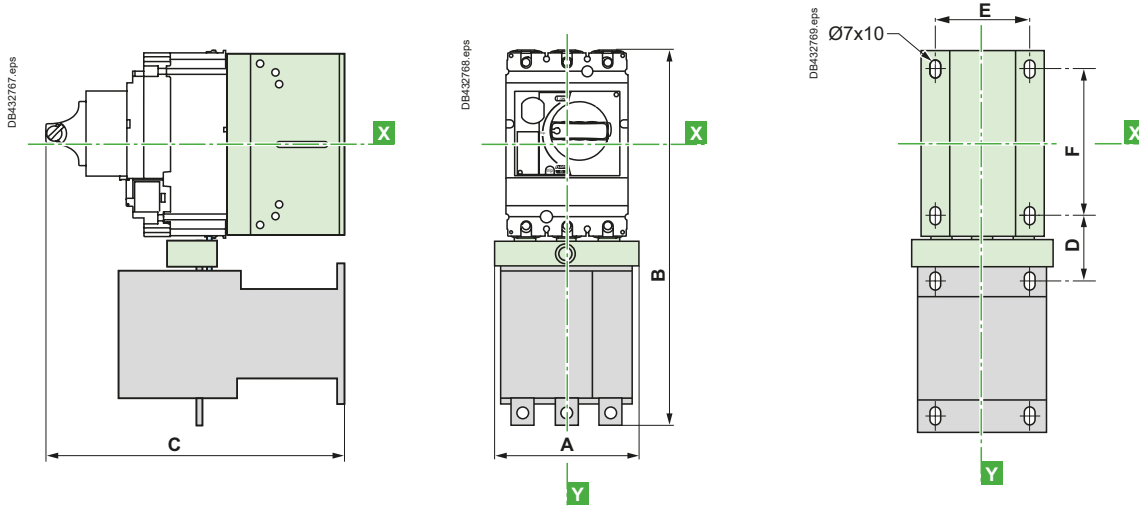
Dimensions, mounting - TeSys GV5 and GV6 - 55 to 250 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV5P and GV6P

GV5P

Combination of GV5P and TeSys contactor LC1 F●●/LC1 D●● with kit GV7AC0●



	A	B	C	D	E	F
GV5P + LC1F115 + GV7AC06	119	334	243	44	85	120
GV5P + LC1F150 + GV7AC06	119	334	243	46	85	120
GV5P + LC1F185 + GV7AC06	119	338	249	48	85	120
GV5P + LC1F225 + GV7AC07	131	358	249	57	85	120
GV5P + LC1F265 + GV7AC07	131	364	277	60	85	120
GV5P + LC1D115 + GV7AC08	120	332	205	48	85	120
GV5P + LC1D150 + GV7AC08	120	332	205	48	85	120

Minimum distance between 2 circuit breakers mounted side by side = 0

Circuit breakers

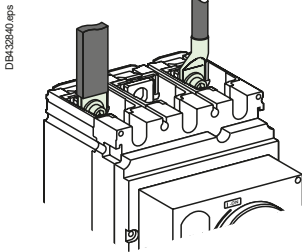
Dimensions and connection - TeSys GV5 and GV6 - 55 to 250 kW

TeSys protection components

Thermal-magnetic motor circuit breakers GV5P and GV6P

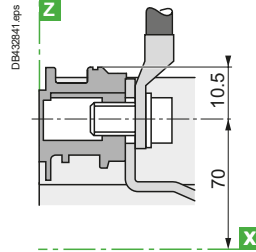
GV5P/GV6P

Front connection without accessories



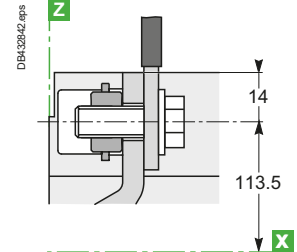
GV5

Cables with lugs bars



GV6

Bars/cables with lugs

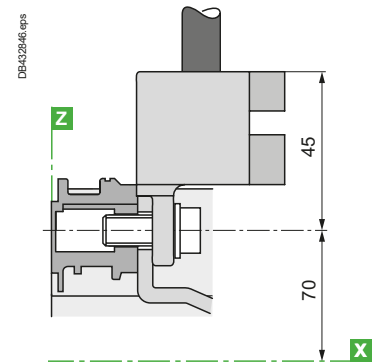
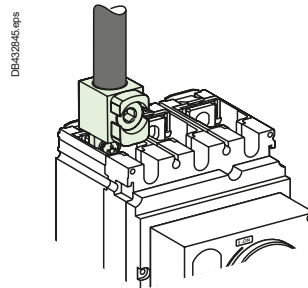
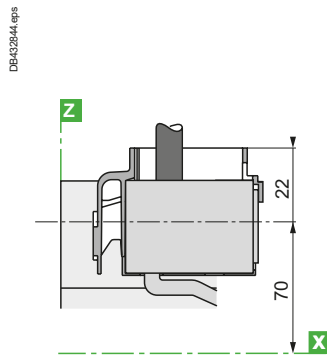
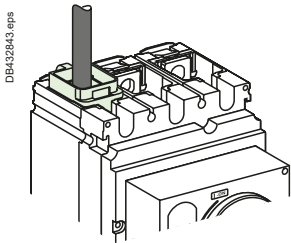


GV5P

Bare-cables connectors

GV7AC021/LV429227/GV7AV022

LV429244

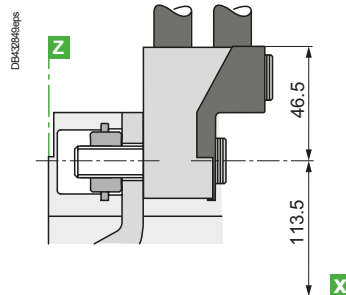
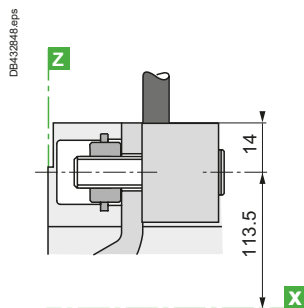
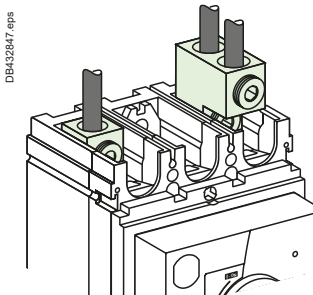


GV6P

Bare-cables connectors

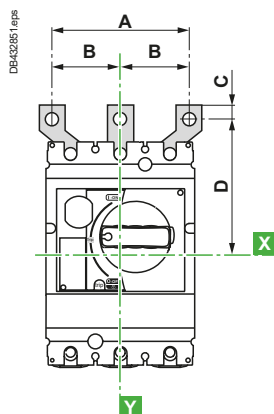
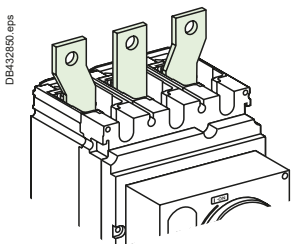
LV432479

LV432481



GV5P/GV6P

Spreaders



Type	A	B	C	D
GV5P/ Spreaders GV7AC03	114	45	11	100
GV6P/ Spreaders LV432490	135	52.5	15	152.5
GV6P/ Spreaders LV432492	170	70	15	166

Circuit breakers

Schemes - TeSys GV5 and GV6 - 55 to 250 kW

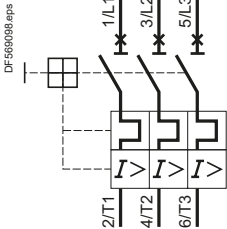
TeSys protection components

Thermal-magnetic motor circuit breakers GV5P and GV6P

Schemes

Motor circuit breakers

GV5P/ 6P



Add-on auxiliary contacts according to their location ⁽¹⁾

GV7 AE11, GV7 AB11

Location 1
C/O contact



Location 2
Trip indication



Location 3
Electrical fault
indication ⁽²⁾



Location 4
C/O contact



A self-adhesive label, supplied with the contact, can be affixed to the front face of the circuit-breaker to allow personalised marking according to the function of the contact or contacts.

⁽¹⁾ See page B6/52 to B6/54.

⁽²⁾ Adapter LV429451 is mandatory for electrical trip indication in GV5.

Electric trips

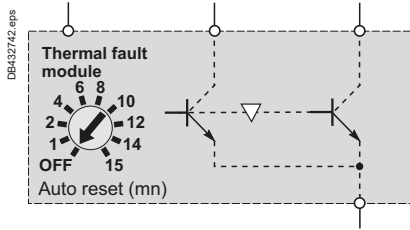
GV7AU●●●



GV7AS●●●

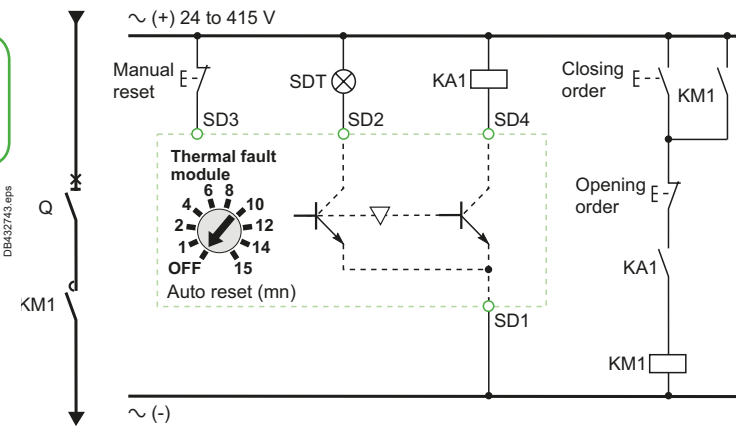


Thermal fault module LV429424



Recommended application schemes for LV429424

Circuit breakers



- SD1, SD3:** thermal fault module input power supply
 - SD2:** over-load fault signal output. This output will stay-put until reset
 - SD4:** contactor control output
 - SD2 and SD4:** Static outputs: 24 to 415 V AC / V DC; 80 mA max
 - KM1:** LC1 D or LC1 F contactor
 - KA1:** CA2 or CAD type control relays
- Terminals shown in green ● must be connected by customer.

TeSys GB2

0.5 to 20 A

(for equipment and control circuits)



Protection components

Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

Environment			GB2CB	GB2CD	GB2DB	GB2CS
Circuit breaker type			IEC 60947-1, 947-2, EN 60947-1, 60947-2			
Conforming to standards			IEC 60947-1, 947-2, EN 60947-1, 60947-2			
Product certifications			CSA, NEMKO, UL	NEMKO, UL	-	-
Degree of protection	Conforming to IEC 60529		IP 20			
Shock resistance	Conforming to IEC 60068-2-27		22 gn for 20 ms			
Vibration resistance	Conforming to IEC 60068-2-6		5 gn (5...110 Hz)			
Ambient air temperature around the device	Storage	°C	-40...+80			
	Operation	°C	-20...+60			
Flame resistance	Conforming to IEC 60695-2-11	°C	960			
Maximum operating altitude		m	3000			
Operating position	In relation to normal vertical mounting plane					
Cabling	Solid cable	mm ²	Minimum c.s.a.		Maximum c.s.a.	
	Flexible cable with cable end	mm ²	1 x 0.75		1 x 6 or 2 x 4	
Tightening torque		N.m	1.2			

Technical characteristics			GB2CB		GB2CD		GB2DB		GB2CS		
Utilisation category	Conforming to IEC 60947-2		A		A		A		A		
Rated operational voltage (Ue)	Conforming to IEC 60947-2	V	250 ⁽¹⁾		250		415		250 ⁽¹⁾		
	Conforming to CSA C22-2 Nr 14 and UL 1077	V	277		-		277		-		
Rated operational frequency	Conforming to IEC 60947-2	Hz	50/60		50/60		50/60		50/60		
Rated impulse withstand voltage (U imp)	Conforming to IEC 60947-2	kV	4		4		4		4		
Total power dissipated per pole		W	2		2		2		1.9		
Mechanical and electrical durability	C.O.: Closing - Opening	C.O.	8000		8000		8000		8000		
Operational current correction coefficient (a or --)	According to the permissible ambient temperature	°C	-20	-10	0	+10	+20	+30	+40	+50	+60
	Correction coefficient		1.2	1.15	1.1	1.05	1	0.95	0.90	0.85	0.80
Tripping threshold	Of the magnetic trips		12...16 In		12...16 In		12...16 In		5...7 In		

(1) Ue = 415 V when a GB2 circuit breaker is fitted on every live conductor.

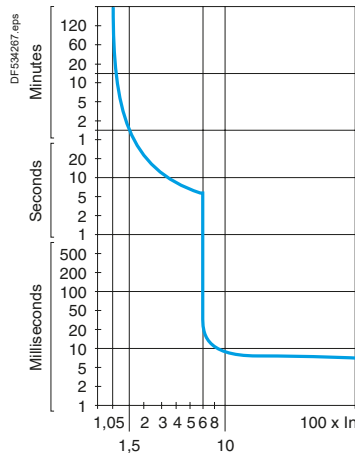
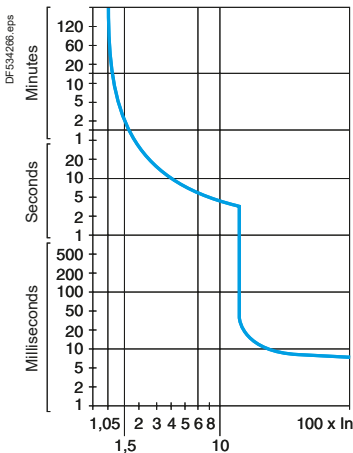
Circuit breakers

Tripping curves

Average operating time at 20 °C without prior current flow (cold state)

GB2CB, GB2 CD, GB2 DB

GB2CS



Protection components

Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

Circuit breaker type			GB2												
			CB05	CB06	CB07	CB08	CB09	CB10	CB12	CB14	CB16	CB20	CB21	CB22	
Rating		A	0.5	1	2	3	4	5	6	8	10	12	16	20	
Breaking capacity conforming to IEC 60947-2 ~ 50/60 Hz	110 V	Icu	kA	50	50	15	10	6	3	3	2	2	2	2	
		Ics % ⁽¹⁾		100	50	50	50	50	75	75	75	75	75	75	75
	230/240 V	Icu	kA	50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	
		Ics % ⁽¹⁾		25	25	25	50	50	75	75	75	75	75	75	75
Associated fuses, if required if Isc > breaking capacity Icu conforming to IEC 60947-2	110 V	aM	A	*	*	20	25	25	40	40	50	50	63	63	
		gG	A	*	*	25	32	32	50	50	63	63	80	80	
	230/240 V	aM	A	*	*	16	20	20	32	32	40	40	50	50	
		gG	A	*	*	25	32	32	40	40	50	50	63	63	

Circuit breaker type			GB2												
			CD05	CD06	CD07	CD08	CD09	CD10	CD12	CD14	CD16	CD20	CD21	CD22	
Rating		A	0.5	1	2	3	4	5	6	8	10	12	16	20	
Breaking capacity conforming to IEC 60947-2 ~ 50/60 Hz	110 V	Icu	kA	50	50	15	10	6	3	3	2	2	2	2	
		Ics % ⁽¹⁾		100	50	50	50	50	75	75	75	75	75	75	75
	230/240 V	Icu	kA	50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	
		Ics % ⁽¹⁾		25	25	25	50	50	75	75	75	75	75	75	75
Associated fuses, if required if Isc > breaking capacity Icu conforming to IEC 60947-2	110 V	aM	A	*	*	20	25	25	40	40	50	50	63	63	
		gG	A	*	*	25	32	32	50	50	63	63	80	80	
	230/240 V	aM	A	*	*	16	20	20	32	32	40	40	50	50	
		gG	A	*	*	25	32	32	40	40	50	50	63	63	

Circuit breaker type			GB2												
			DB05	DB06	DB07	DB08	DB09	DB10	DB12	DB14	DB16	DB20	DB21	DB22	
Rating		A	0.5	1	2	3	4	5	6	8	10	12	16	20	
Breaking capacity conforming to IEC 60947-2 ~ 50/60 Hz	110 V	Icu	kA	50	50	15	10	6	3	3	2	2	2	2	
		Ics % ⁽¹⁾		100	50	50	50	50	75	75	75	75	75	75	75
	230/240 V	Icu	kA	50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	
		Ics % ⁽¹⁾		25	25	25	50	50	75	75	75	75	75	75	75
	400/415 V	Icu	kA	50	50	15	3	3	2	1.5	1.5	1.5	1.5	1.5	
		Ics % ⁽¹⁾		25	25	25	50	50	75	75	75	75	75	75	75
Associated fuses, if required if Isc > breaking capacity Icu conforming to IEC 60947-2	110 V	aM	A	*	*	20	25	25	40	40	50	50	63	63	
		gG	A	*	*	25	32	32	50	50	63	63	80	80	
	230/240 V	aM	A	*	*	16	20	20	32	32	40	40	50	50	
		gG	A	*	*	25	32	32	40	40	50	50	63	63	
	400/415 V	aM	A	*	*	16	20	20	32	32	40	40	50	50	
		gG	A	*	*	25	32	32	40	40	50	50	63	63	

⁽¹⁾ As % of Icu.

* Fuse not required. Breaking capacity Icu > Isc.

Circuit breakers

Characteristics - TeSys GB

Protection components

Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

Circuit breaker type				GB2											
				●●05	●●06	●●07	●●08	●●09	●●10	●●12	●●14	●●16	●●20	●●21	●●22
Breaking capacity (I _{cu}) conforming to IEC 60947-2 ---	24 V	kA		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	48 V	kA		1	1	1	1	1	1	1	1	–	–	–	–
Operational current conforming to IEC 60947-5-1 ---	DC-12	24 V	A	0.5	1	2	3	4	5	6	8	10	12	16	20
		48 V	A	0.5	1	2	3	4	5	6	8	10	12	16	20
	DC-13	24 V	A	0.5	1	2	3	4	5	6	8	10	12	16	20
		48 V	A	0.5	1	2	3	4	5	6	8	–	–	–	–
Circuit breaker type				GB2											
				CS05						CS06					
Rating		A		0.5						1					
Breaking capacity conforming to IEC 60947-2 ~ 50/60 Hz	110 V	I _{cu}	kA	50						50					
		I _{cs} % ⁽¹⁾		100						100					
	230/240 V	I _{cu}	kA	50						50					
I _{cs} % ⁽¹⁾			25						25						
400/415 V ⁽²⁾	I _{cu}	kA	50						50						
	I _{cs} % ⁽¹⁾		25						25						
Breaking capacity (I _{cu}) conforming to IEC 60947-2 ---	24 V	kA		1.5						1.5					
	48 V	kA		1						1					
Operational current conforming to IEC 60947-5-1 ---	DC-12	24 V	A	0.5						1					
		48 V	A	0.5						1					
	DC-13	24 V	A	0.5						1					
		48 V	A	0.5						1					
Maximum permissible line length for star-delta starting (length of cable containing 2 or more conductors)	With contactors LC●D09...D18	Operational voltage	V	48	110	230	48	110	230						
		C.s.a.	0.60 mm ²	m	⁽³⁾	31	365	6	85	230					
		0.75 mm ²	m	⁽³⁾	39	460	8	110	290						
		1 mm ²	m	⁽³⁾	52	610	10	145	380						
		1.5 mm ²	m	⁽³⁾	78	910	15	220	570						
		2.5 mm ²	m	⁽³⁾	130	1520	26	360	950						
		4 mm ²	m	⁽³⁾	200	2400	41	580	1500						
	With contactors LC●D25...D32	Operational voltage	V	48	110	230	48	110	230						
		C.s.a.	0.60 mm ²	m	⁽³⁾	⁽³⁾	230	⁽³⁾	56	230					
		0.75 mm ²	m	⁽³⁾	⁽³⁾	290	⁽³⁾	70	290						
		1 mm ²	m	⁽³⁾	⁽³⁾	390	⁽³⁾	95	380						
		1.5 mm ²	m	⁽³⁾	⁽³⁾	580	⁽³⁾	140	570						
		2.5 mm ²	m	⁽³⁾	⁽³⁾	970	⁽³⁾	230	950						
		4 mm ²	m	⁽³⁾	⁽³⁾	1500	⁽³⁾	375	1500						
	With contactors LC●D40...D80	Operational voltage	V	48	110	230	48	110	230						
		C.s.a.	0.60 mm ²	m	⁽³⁾	⁽³⁾	46	⁽³⁾	13	100					
		0.75 mm ²	m	⁽³⁾	⁽³⁾	60	⁽³⁾	17	130						
		1 mm ²	m	⁽³⁾	⁽³⁾	80	⁽³⁾	22	170						
		1.5 mm ²	m	⁽³⁾	⁽³⁾	120	⁽³⁾	34	250						
		2.5 mm ²	m	⁽³⁾	⁽³⁾	190	⁽³⁾	56	420						
	4 mm ²	m	⁽³⁾	⁽³⁾	310	⁽³⁾	90	680							

(1) As % of I_{cu}.
 (2) One GB2CS circuit breaker on each live conductor.
 (3) Use relays.

Circuit breakers

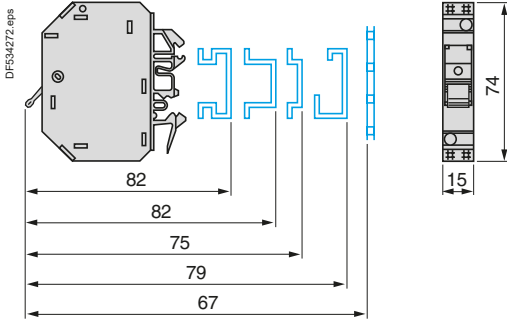
Dimensions, schemes - TeSys GB

Protection components

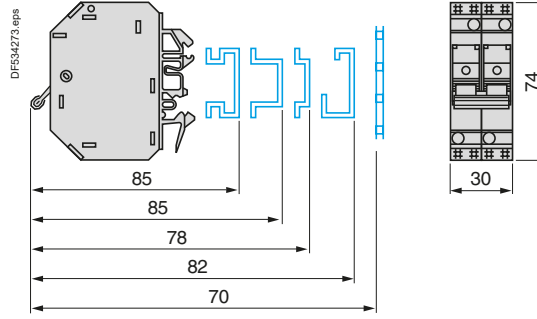
Thermal-magnetic circuit breakers TeSys GB2 for the protection of industrial equipment control circuits

Dimensions

GB2CB●●, GB2CD●●, GB2CS●●



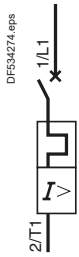
GB2DB●●



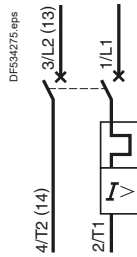
Marking: up to twelve AB1 R clip-in markers.

Schemes

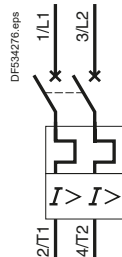
GB2CB●●



GB2CD●●



GB2DB●●



GB2CS●●



