

TAE9...26 3-pole Contactors

d.c. operated with double-winding coil



TAE 12-30-00

Coil voltages and codes: TAE

Voltage - U_c V d.c.	Code □□
17 ... 32	5 1
25 ... 45	5 2
36 ... 65	5 4
42 ... 78	5 8
50 ... 90	5 5
77 ... 143	6 2
90 ... 150	6 6
152 ... 264	6 8

Other voltages: please consult us.



Voltage tolerances (-15 % and +10 %) included in the U_c min. and U_c max. values for the TAE... contactors.

Utilisation

TAE9 to TAE26 contactors are a compliment to the DC control contactor range. The coils have large voltage ranges in accordance with the requirements of railway applications. They are also suitable for control from a battery supply. The complimentary technical information not included in these pages can be found in the Main Technical Catalogue for Contactors 1SBC100122C0201.

Ordering Details: TAE...

Rated operational current	Auxiliary contacts fitted	Type	Order code	Weight kg	
AC-3 400 V A	AC-1 $\theta \leq 40$ °C A		state coil voltage □□□ (see opposite table)	state coil voltage code □□ (see opposite table)	Pack ^{ing} 1 piece
9	25	--	TAE 9-30-00 □□□	1SBL 14 9061 R□□00	0.340
12	27	--	TAE 12-30-00 □□□	1SBL 16 9061 R□□00	0.340
16	30	--	TAE 16-30-00 □□□	1SBL 18 9061 R□□00	0.340
26	45	--	TAE 26-30-00 □□□	1SBL 24 9061 R□□00	0.600

Replacement Coils

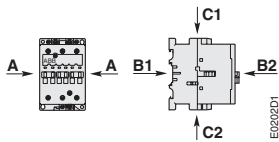
For contactor	Type	Order code	Weight kg
	state coil voltage □□□ (see opposite table)	state coil voltage code □□ (see opposite table)	Pack ^{ing} 1 piece
TAE9...TAE16	ZAE16 □□□	1SBN 15 1490 R□□06	0.093
TAE26	ZAE40 □□□	1SBN 15 2490 R□□06	0.148

TAE9...26 Contactors

Technical Data

General Technical Data

Contactor types: TAE...	9	12	16	26
Rated insulation voltage U_i according to IEC 60947-4-1	V	1000		
according to UL/CSA	V	600		
Rated impulse withstand voltage U_{imp}, kV		8		
Standards	Devices comply with international standards IEC 60947-1 / 60947-4-1 and European standards EN 60947-1 / 60947-4-1			
Certifications - Approvals	see Technical Catalogue 1SBC100122C0201			
Air temperature close to contactor	"Conditions for use" page 1/4, for control voltage limits and authorized mounting positions			
– fitted with thermal O/L relay	°C	-25 to +55		
– without thermal O/L relay	°C	-40 to +55		
– for storage	°C	-60 to +80		
Climatic withstand	acc. to IEC 60068-2-30 and 60068-2-11 - UTE C 63-100 specification II			
Operating altitude	m	≤ 3000		
Shock withstand acc. IEC 60068-2-27 and EN 60068-2-27 Mounting position 1 (see page 1/4)	1/2 sinusoidal shock for 11 ms: no change in contact position			
	Shock direction	Making position	Breaking position	
	A	20 g	20 g	
	B1	10 g	5 g	
	B2	15 g	15 g	
	C1	20 g	20 g	
	C2	20 g	20 g	



Magnet System Characteristics for TAE... Contactors

Contactor types: TAE...	9	12	16	26
Rated control circuit voltage U_c V d.c.	17 ... 264			
Coil operating limits	$\theta \leq 55$ °C			
	U_c min. ... U_c max.			
Drop-out voltage in % of U_c max.	10 ... 30 %			
Coil consumption values for U_c min. ... U_c max.				
– pull-in value	W	65 ... 140		
– holding value	W	1.0 ... 3.5		
Coil time constant				
– open	L/R	ms	2	3
– closed	L/R	ms	9	16
Operating time between coil energization and:				
– N.O. contact closing	ms	10 ... 16		13...21
– N.C. contact opening	ms	8 ... 12		11...16
between coil de-energization and				
– N.O. contact opening	ms	5 ... 14 (1)		6 ... 12 (1)
– N.C. contact closing	ms	11 ... 17 (1)		8...16(1)

(1) The use of surge suppressors increases the opening time on a scale of 1.1 to 1.5 for a varistor suppressor and on a scale of 4 to 8 for a diode suppressor.

TAE9...26 Contactors

Technical Data

Main Pole - Utilization Characteristics

Contactor types: TAE...	9	12	16	26	
Rated operational voltage U_e max. V	690				
Rated frequency limits Hz	25 ... 400				
Conventional free-air thermal current I_{th} acc. to IEC 60947-4-1, open contactors $\theta \leq 40^\circ\text{C}$	A	26	28	30	45
with conductor cross-sectional area mm^2	4	4	4	6	
Rated operational current I_e / AC-1 for air temperature close to contactor					
U_e max. 690 V					
$\theta \leq 40^\circ\text{C}$	A	25	27	30	45
$\theta \leq 55^\circ\text{C}$	A	22	25	27	40
$\theta \leq 70^\circ\text{C}$ (1)	A	–	–	–	–
with conductor cross-sectional area mm^2	2.5	4	4	6	
Utilization categorie AC-3 for air temperature close to contactor $\leq 55^\circ\text{C}$					
Rated operational current I_e AC-3					
220-230-240 V	A	9	12	17	26
3-phase motors 380-400 V	A	9	12	17	26
415 V	A	9	12	17	26
440 V	A	9	12	16	26
500 V	A	9	12	14	22
690 V	A	7	9	10	17
1000 V	A	–	–	–	–
Rated operational power AC-3					
220-230-240 V	kW	2.2	3	4	6.5
1500 r.p.m. 50 Hz 1800 r.p.m. 60 Hz 3-phase motors 380-400 V	kW	4	5.5	7.5	11
415 V	kW	4	5.5	9	11
440 V	kW	4	5.5	9	15
500 V	kW	5.5	7.5	9	15
690 V	kW	5.5	7.5	9	15
1000 V	kW	–	–	–	–
Rated making capacity AC-3 according to IEC 60947-4-1	10 x I_e AC-3				
Rated breaking capacity AC-3 according to IEC 60947-4-1	8 x I_e AC-3				
Short-circuit protection for contactors without thermal O/L relay - Motor protection excluded $U_e \leq 500$ V a.c. - gG type fuse	A	25	32	32	50
Rated short-time withstand current I_{cw} at 40°C ambient temp., in free air, from a cold state					
1 s	A	250	280	300	400
10 s	A	100	120	140	210
30 s	A	60	70	80	110
1 min	A	50	55	60	90
15 min	A	26	28	30	45
Maximum breaking capacity $\text{COS } \varphi = 0.45$ ($\text{COS } \varphi = 0.35$ for $I_e > 100$ A)					
at 440 V	A	250	250	250	420
at 690 V	A	100	100	100	170
Heat dissipation per pole I_e / AC-1	W	0.8	1	1.2	1.8
I_e / AC-3	W	0.1	0.2	0.35	0.6
Max. electrical switching frequency					
– for AC-1	cycles/h	600			
– for AC-3	cycles/h	600			
– for AC-2, AC-4	cycles/h	300			
Electrical durability	See A Contactor curves in Technical Catalogue 1SBC100122C0201				
Mechanical durability					
– millions of operating cycles		5			
– max. mechanical switching frequency	cycles/h	3600			

(1) Unauthorized for TAE... contactors.

TAE9...26 Contactors

d.c. Operated with Double-Winding Coil

Mounting Characteristics

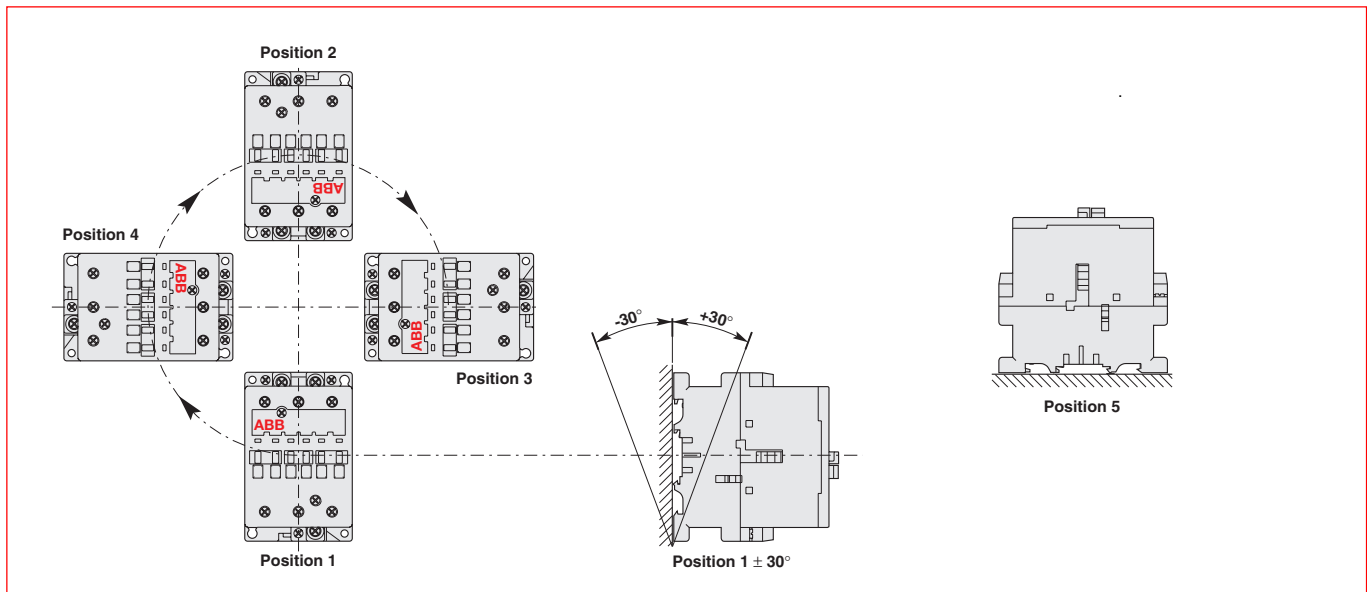
Contactor types: TAE...	9	12	16	26
Mounting positions	Shown below			
Mounting distances	The contactors can be assembled side by side			
Fixing on DIN rail according to IEC 715 and EN 50022 / EN 50023 by screws (not supplied)	35 x 7.5 mm			
	35 x 15 mm			
	2 x M4			

Conditions for Use

The contactor utilisation conditions relating to the Mounting position, Ambient temperature and Control voltage operating limits are summarized in the table below.

Contactors	Mounting position	Ambient temperature	Control voltage
TAE 9 ... TAE 26	1, 1 ± 30°, 2, 3, 4, 5	≤ 55 °C	U _c min. ... U _c max.

Mounting Positions (see the above table for authorized positions)



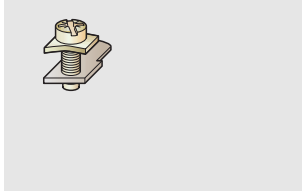
TAE9 to TAE26 accessory compatibility

Contactor configuration	Front-mounted accessories (1)			Side-mounted accessories	
Contactor types: Main poles: 3 0 0 0 Available auxiliary contacts: 0 0					
TAE 9 ... TAE 26	1 to 4 x CA 5-.. or	1 x CA 5-.. (4-pole) or	1 x TP .. A	+ 1 to 2 x CAL 5-11 or	1 x VM 5-1 or VE 5-1 + 1 x CAL 5-11

TAE9...26 Contactors

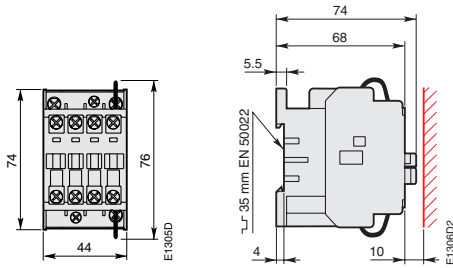
Technical Data

Connecting Characteristics

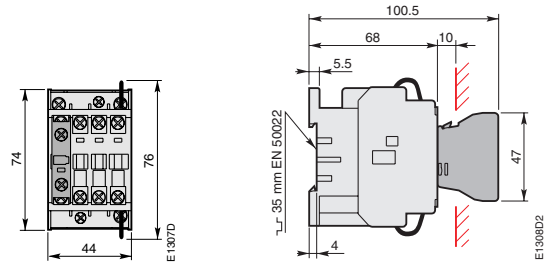
Contactor types: TAE...	9	12	16	26
Main terminals				
	with cable clamp			
Connecting capacity (min. ... max.)				
Main conductors (poles)				
Rigid: solid ($\leq 4 \text{ mm}^2$)	1 x mm^2		1.5 ... 6	
stranded ($\geq 6 \text{ mm}^2$)	2 x mm^2		1.5 ... 6	
Rigid with connector				
single for Cu cable	mm ²		–	
single for Al/Cu cable	mm ²		–	
double for Al/Cu cable	mm ²		–	
Flexible with cable end	1 x mm^2		0.75 ... 2.5	
	2 x mm^2		0.75 ... 2.5	
Bars or lugs	L mm \leq		8	
	l mm $>$		3.7	
			10	
			4.2	
Auxiliary conductors (coil terminals)				
Rigid solid	1 x mm^2		1 ... 4	
	2 x mm^2		1 ... 4	
Flexible with cable end	1 x mm^2		0.75 ... 2.5	
	2 x mm^2		0.75 ... 2.5	
Lugs	L mm \leq		8	
	l mm $>$		3.7	
			L < 8 and l > 3.7 for coil terminal - L \leq 10 and l > 4.2 for built-in auxiliary terminals.	
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529	Protection against direct contact acc. to VDE 0106 - Part. 100			
– Main terminals	IP 20			
– Coil terminals	IP 20			
Screw terminals	(delivered in open position, screws of unused terminals must be tightened)			
Main terminals	(+, -) pozidriv 2 screws			
	M3.5		M4	
Coil terminals	M3.5 (+, -) pozidriv 2 screws with cable clamp			
Tightening torque				
Main pole terminals				
– recommended	Nm / lb.in	1.00 / 9	1.7 / 15	
– max.	Nm	1.20	2.20	
Coil terminals				
– recommended	Nm / lb.in	1.00 / 9		
– max.	Nm	1.20		
Terminal marking and positioning	See Section 8 of Technical Catalogue 1SBC100122C0201. Same as all AE range.			



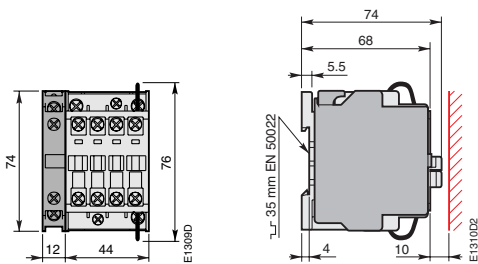
Dimensions (in mm)



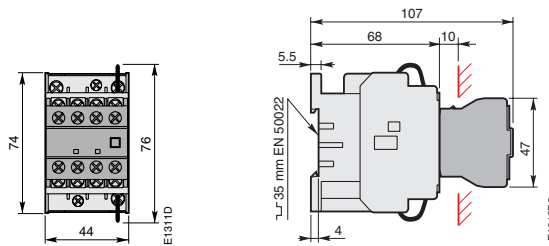
TAE 9, TAE 12, TAE 16



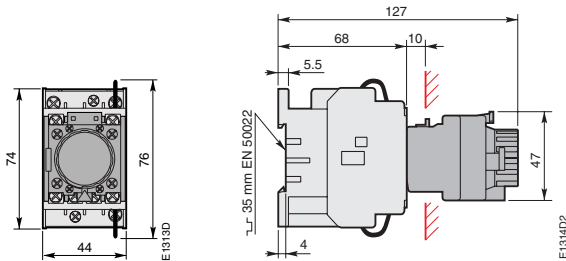
TAE 9, TAE 12, TAE 16
 + CA 5 front-mounted 1-pole auxiliary contact block



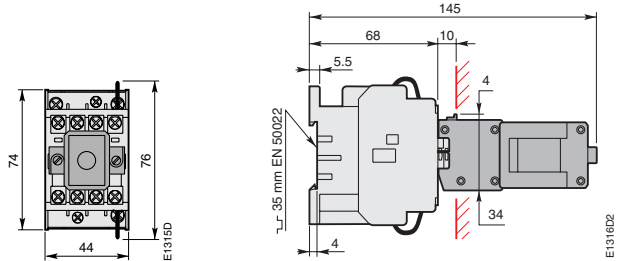
TAE 9, TAE 12, TAE 16
 + CAL 5 side-mounted 2-pole auxiliary contact block



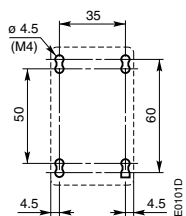
TAE 9, TAE 12, TAE 16
 + CA 5 front-mounted 4-pole auxiliary contact block



TAE 9, TAE 12, TAE 16
 + TP pneumatic timer



TAE 9, TAE 12, TAE 16
 + WB 75-A on-position latch

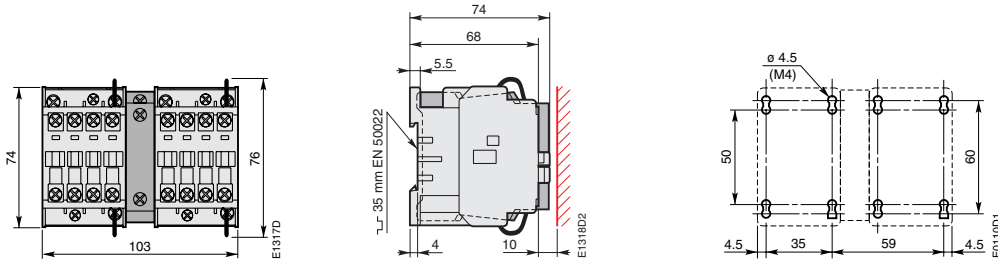


TAE 9, TAE 12, TAE 16

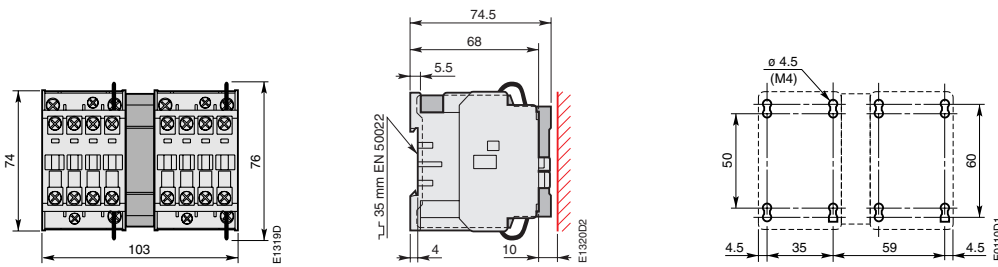
Detailed dimension drawings available in DXF and PDF formats.



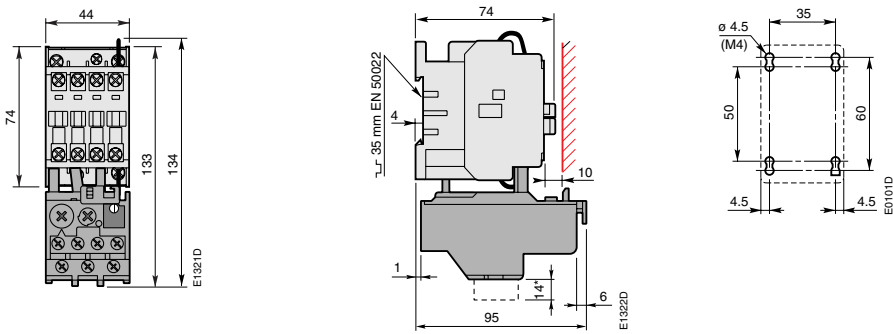
Dimensions (in mm)



**TAE 9, TAE 12, TAE 16
 + VE 5-1 electrical and mechanical interlock unit**



**TAE 9, TAE 12, TAE 16
 + VM 5-1 mechanical interlock unit**



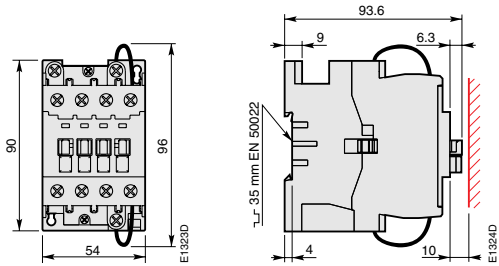
**TAE 9, TAE 12, TAE 16
 + TA 25 DU thermal O/L relay**

* For TA 25 DU 32 only

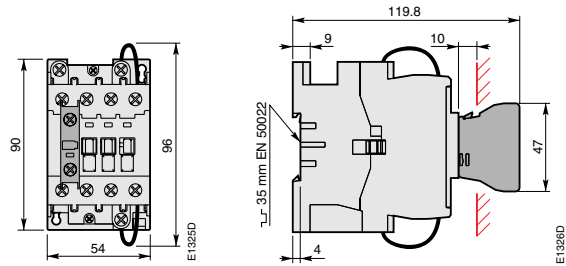
Detailed dimension drawings available in DXF and PDF formats.



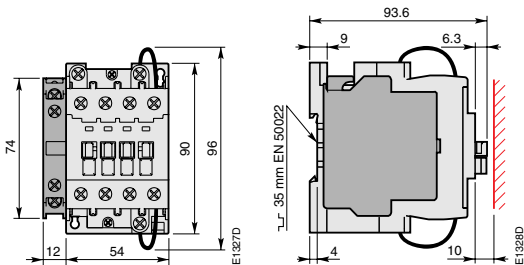
Dimensions (in mm)



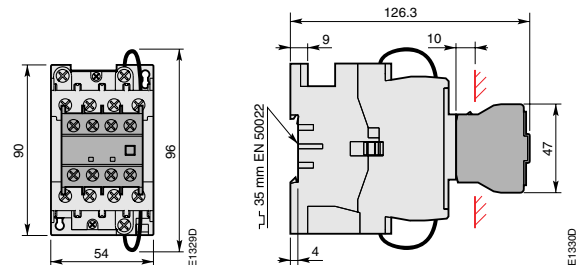
TAE 26



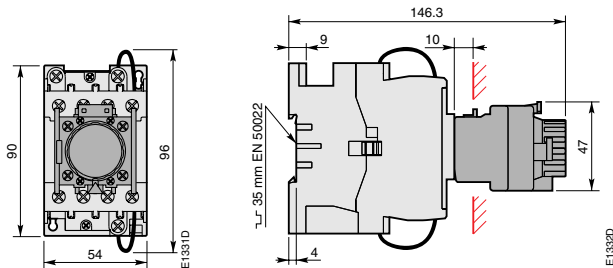
TAE 26
 + CA 5 front-mounted 1-pole auxiliary contact block



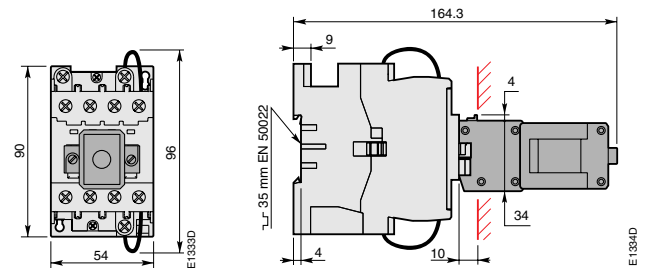
TAE 26
 + CAL 5 side-mounted 2-pole auxiliary contact block



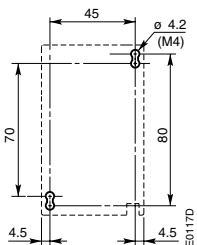
TAE 26
 + CA 5 front-mounted 4-pole auxiliary contact block



TAE 26
 + TP pneumatic timer



TAE 26
 + WB 75-A on-position latch

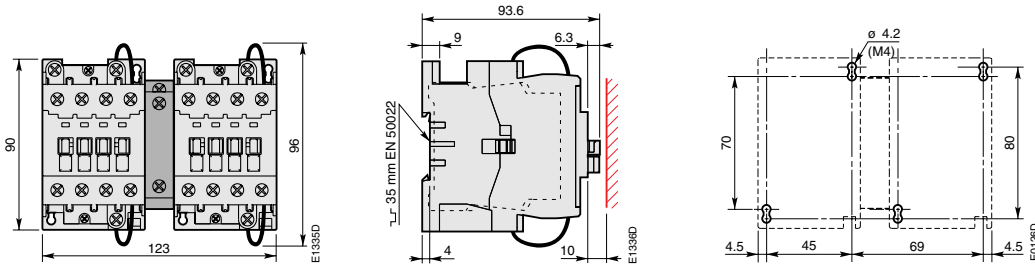


TAE 26 drilling plan

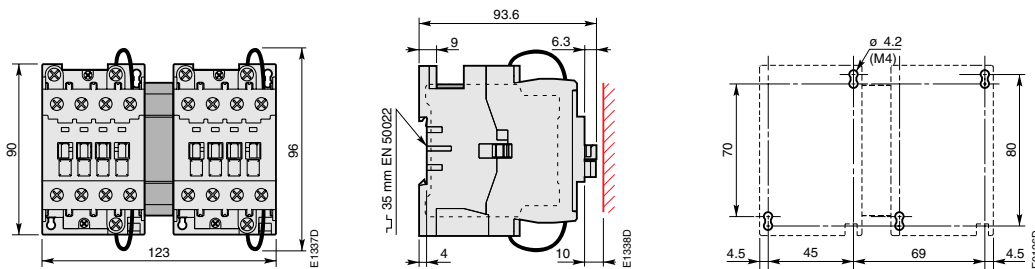
Detailed dimension drawings available in DXF and PDF formats.



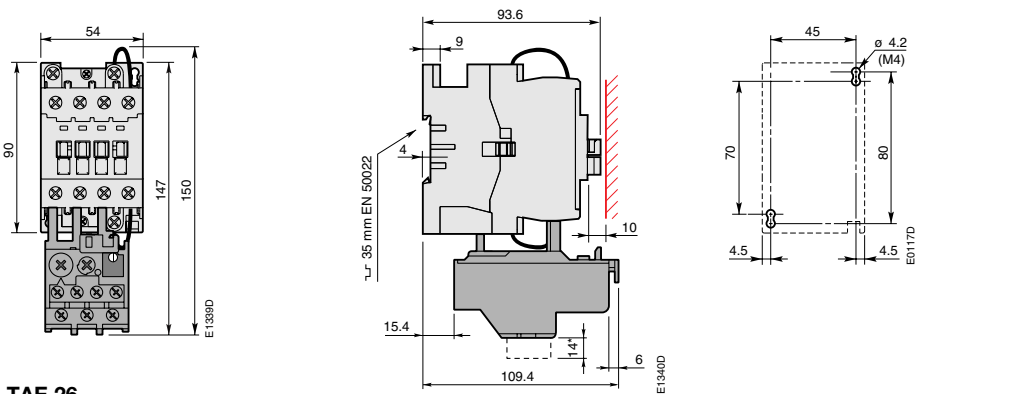
Dimensions (in mm)



TAE 26
 + VE 5-1 electrical and mechanical interlock unit



TAE 26
 + VM 5-1 mechanical interlock unit



TAE 26
 + TA 25 DU thermal O/L relay

* For TA 25 DU 32 only