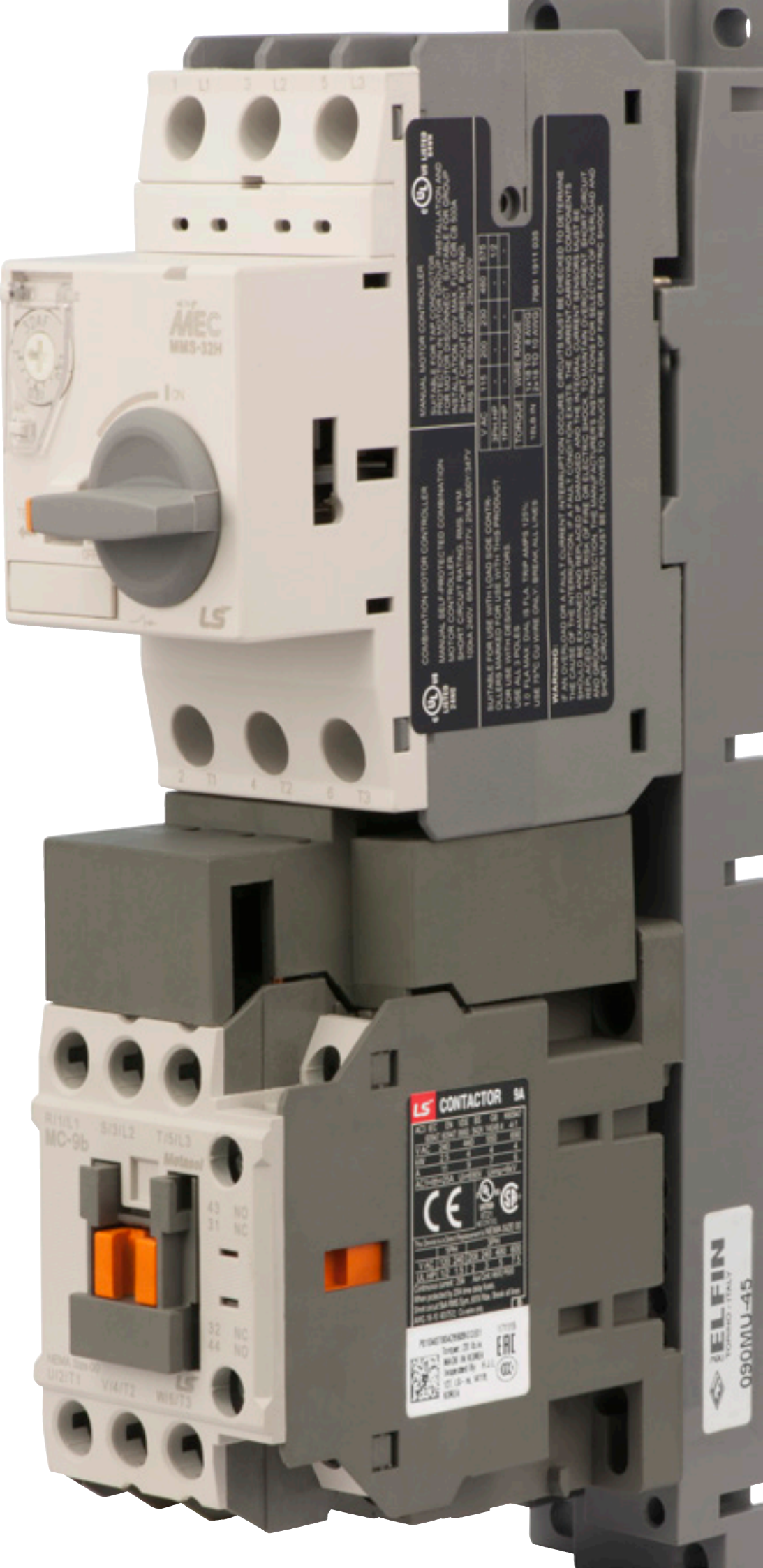
MEC
MMS-32H
CONTACTOR 9A
MC-9b
ELFIN
090MU-45

090

CONTATTORI, RELÈ TERMICI, MINI CONTATTORI, INTERRUTTORI SALVAMOTORE

CONTACTORS, THERMAL O/L RELAYS, MINICONTACTORS, MANUAL MOTOR STARTERS

Nuova linea di contattori
New line of contactors

La NEW ELFIN propone una nuova linea di contattori caratterizzati da una estrema modularità. L'ampia gamma di accessori in comune alle differenti taglie di potenza permette di gestire il lavoro in modo più funzionale e ottimizzare i costi al contrario di quanto l'offerta del mercato può mantenere.

NEW ELFIN proposes a new line of contactors, characterized by an exceptional modularity. The wide range of accessories in common among different power sizes, allow you to work in a more functional way optimizing costs and time.

SENZA UTENSILI

L'installazione dei contattori e la sostituzione della bobina sono estremamente semplici e non necessitano di **utensili** per il montaggio.

NO TOOLS

The contactors installation and the coils replacement are very easy operations and do not requires special **tools**.

DIMENSIONI

Le **dimensioni** estremamente compatte dei contattori offrono una maggiore facilità di installazione anche in situazioni particolarmente difficoltose. L'installatore troverà quindi indubbi vantaggi sia in fase di progettazione che realizzazione.

DIMENSIONS

Thanks to the very compact **dimensions** of the contactors installation procedure is very easy, even in particularly difficult situations.
The operator responsible for their installation will gain huge benefits during both design and implementation phases.

PESO

Contrariamente a quanto è richiesto ad altre tipologie di prodotti, per i contattori il **peso** è una qualità determinante. Infatti a maggior peso corrisponde una migliore efficenza e una garanzia di lunga opertività nel tempo.

WEIGHT

Unlike what is required by other types of products, **weight** is an important aspect for contactors, with greater weight corresponding to increased efficiency and long operational life.

PREZZO

A parità di serie i relè hanno un prezzo comune per favorire una più snella gestione degli acquisti. Una opportunità da non sottovalutare facendo riferimento in particolare al range di prezzi offerti attualmente dal mercato.

PRICE

Relays in series of the same level cost the same, in order to streamline the management of purchases. This is an opportunity to be taken into serious consideration, making particular reference to the price range currently offered by the market.

DURATA

La **durata** nel tempo è fondamentale per garantire un flusso di lavoro costante ed un'ottimizzazione dell'investimento: i contattori NEW ELFIN garantiscono una media di 25 milioni di cicli come vita meccanica e 2,5 milioni come vita elettrica, queste caratteristiche pongono i nostri contattori al top della produzione mondiale.

DURATION

Duration is fundamental in order to guarantee a constant work flow and optimise the investment: NEW ELFIN contactors guarantee an average of 25,000,000 cycles of mechanical life and 2,500,000 cycles of electrical life. These characteristics place our contactors at the top of the international production.

Layout
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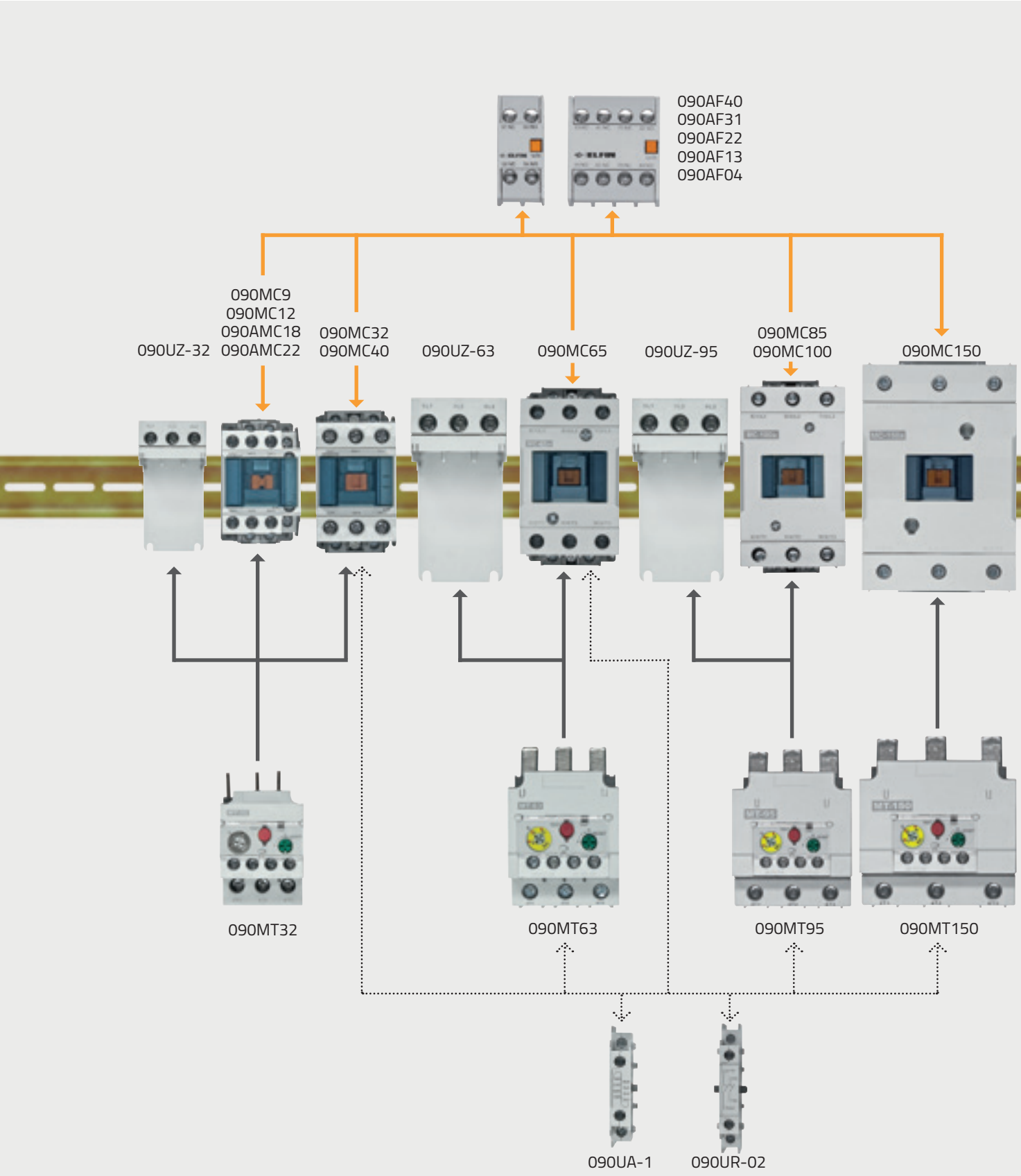

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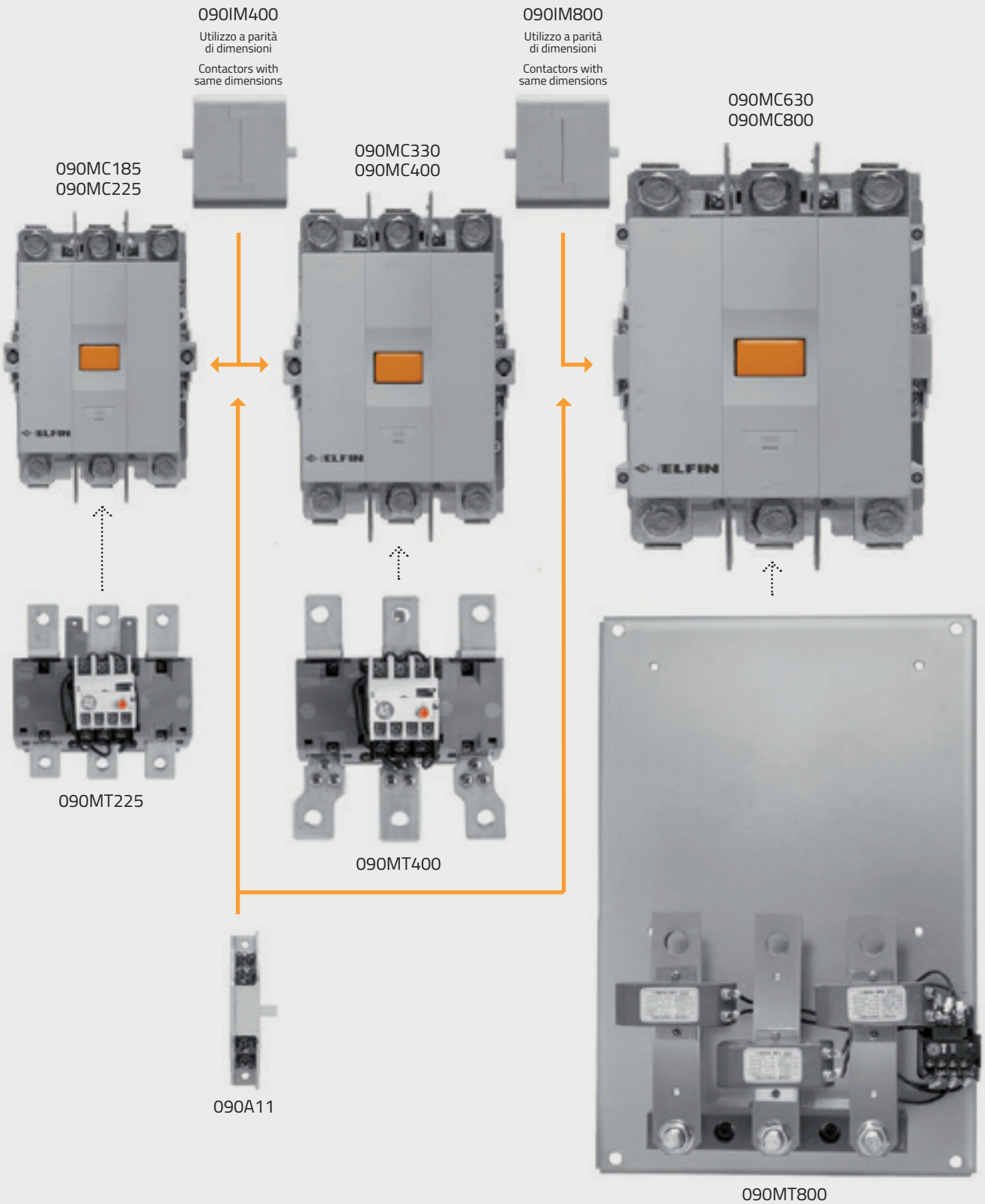


Introduzione
Introduction

La norma definisce il contattore come un dispositivo elettromeccanico di manovra, generalmente previsto per un numero elevato di manovre, avente una sola posizione di riposo, ad azionamento non manuale, in grado di stabilire, portare e interrompere correnti in condizioni normali del circuito, incluse le condizioni di sovraccarico e manovra. La forza per la chiusura dei contatti principali normalmente aperti o per l'apertura dei contatti normalmente chiusi è fornita da un elettromagnete. Nelle pagine a seguire trovete una serie di informazioni utili per ottimizzare la scelta del contattore necessario a risolvere il problema specifico di impiego.

The standard describes the contactor as an electromechanical manoeuvring device, generally designed for a high number of operations, with just one idle position which is non-manually activated, capable of making carrying and breaking currents under normal circuit conditions, including overloading and operating conditions. The force required to close the main contacts which are normally open or to open contacts which are normally closed is supplied by an electromagnet. On the following pages you will find a series of useful information for choosing the best contactor for your specific requirements

COME DIMENSIONARE UN CONTATTORE

Per effettuare il corretto dimensionamento di un contattore occorre tenere conto di alcuni fattori:

- categorie di utilizzazione che identificano la tipologia del carico
- della vita elettrica
- del numero di manovre / ora

HOW TO DIMENSION A CONTACTOR

In order to correctly dimension a contactor, several factors have to be considered:

- the categories of use which identify the type of load
- the electrical life
- the number of operations per hour

Categorie d'impiego
Utilization categories

La normativa stabilisce delle categorie di utilizzazione riferite ad impieghi ben precisi dei contattori. Tali categorie sono riportate nella tabella seguente.

The standard establishes several categories of use referred to precise uses of contactors. These categories are listed in the following table.

CORRENTE ALTERNATA / ALTERNATING CURRENT

Contattori / Contactors

AC-1	Carichi non induttivi o debolmente induttivi, forni a resistenza Non inductive or slightly inductive loads, resistance furnaces
AC-2	Motori ad anelli: avviamento, arresto Slip-ring motors: starting and switching off
AC-3	Motori a gabbia: avviamento, arresto del motore durante la marcia Squirrel cage motors: starting switching off motors during running
AC-4	Motori a gabbia: avviamento, frenatura in controcorrente, manovra a impulsi Squirrel cage motors: starting plugging - inching
AC-5a	Comando di lampade a scarica Switching of electric discharge lamp controls
AC-5b	Comando di lampade ad incandescenza Switching of incandescent lamps
AC-6a	Comando di trasformatori Switching of transformers
AC-6b	Comando di batterie di condensatori Switching of capacitors banks

Circuiti ausiliari / Swiching elements

AC-12	Comando di carichi ohmici e semiconduttori con opto separazione Control of resistive loadsand solid state loads with isolation by opto couples
AC-13	Comando di semiconduttori con trasformatore di separazione Control of solid state loads with transformer isolation
AC-14	Comando di piccoli carichi elettromagnetici (max 72 VA), quali bobine di piccoli conduttori o elettrovalvole Control of small electromagnetic loads (<72VA)
AC-15	Comando di carichi elettromagnetici (oltre 72VA) Control of electromagnetic loads (>72VA)

CORRENTE CONTINUA / DIRECT CURRENT

Contattori / Contactors

DC-1	Carichi non induttivi o debolmente induttivi, forni a resistenza Non inductive or slightly inductive loads, resistance furnaces
DC-3	Motori in derivazione: avviamento, frenatura in controcorrente, manovre a impulsi. Frenatura dinamica di motori in corrente continua Shunt-motors: starting - plugging - inching. Dynamic breaking of D.C. motors
DC-5	Motori in serie: avviamento, frenatura in controcorrente, manovre a impulsi. Frenatura dinamica di motori in corrente continua Series motors: starting - plugging - inching Dynamic braking of D.C. motors
DC-12	Comando di carichi ohmici e semiconduttori con opto separazione Control of resistive loads isolation by opto couples
DC-13	Comando di elettromagneti Electromagnet control
DC-14	Comando di carichi elettromagnetici con resistenza di risparmio sul circuito ausiliario Control of electromagnetic loads having economic resistors in circuit

Categorie d'impiego
Utilization categories

Categoria Category	Minimi (50 cicli) Minimum (50 cycles)		Ordinari (6000 cicli) Standard (6000 cycles)	
	Inserzione / Making	Interruzione / Making	Inserzione / Making	Interruzione / Making
AC-1	1,5 x In	1,5 x In	1 x In	1 x In
AC-2	4 x In	4 x In	2 x In	2 x In
AC-3	10 x In	8 x In	2 x In	2 x In
AC-4	12 x In	10 x In	6 x In	6 x In
AC-5a	3 x In	3 x In	2 x In	2 x In
AC-5b	1,5	1,5 x In	1 x In	1 x In
AC-6a	-	-	-	-
AC-6b	-	-	-	-
DC-1	1,5 x In	1,5 x In	1 x In	1 x In
DC-3	4 x In	4 x In	2,5 x In	2,5 x In
DC-5	4 x In	4 x In	2,5 x In	2,5 x In

AC-1

Questa categoria prevede inserzione, mantenimento e disinserzione di una data corrente nominale. Quindi oltre al comando di carichi ohmici, questa categoria può essere utilizzata per carichi elettricamente equivalenti quali softstarters ed inverter (contattore di linea manovra a vuoto) e nella distribuzione di energia.

This category provides for make, maintenance and break of a given nominal current. Therefore, in addition to the control of resistive loads, this category can be used for electrically equivalent loads, such as softstarters and inverters (no-load operation for line contactor) and to distribute power.

AC-2
AC-3

I contattori classificati in AC-3 possono essere utilizzati per occasionali manovre a impulso e/o frenature in controcorrente per brevi periodi (max. 5 op/min. e minore di 10 op/in10min).

AC-3 Contactors classified in AC-3 can be used for occasional inching operations and/or plugging for short periods of time (max. 5 op./min. and less than 10 op./in 10 min.).

AC-4

È la categoria più gravosa in assoluto, infatti il contattore risulta estremamente sollecitato perché oltre a inserire la corrente di spunto deve anche interromperla.

This is the most stressful category of all. The contactor undergoes tremendous stress as it is used both to make the initial current and to break it.

SEZIONI / SECTIONS	AC-1	AC-2			AC-3				AC-4	
	(Ith)	200-220V	380-440V	500-550V	200-220V	380-440V	500-550V	690V	200-200V	380-440V
	[A]	[kW] [A]	[kW] [A]	[kW] [A]	[kW] [A]	[kW] [A]	[kW] [A]	[kW] [A]	[kW] [A]	[kW] [A]
9	20	2.5 11	4 9	4 7	2.5 11	4 9	4 7	4 5	1.5 8	2.2 6
12	20	3.5 13	5.5 12	7.5 12	3.5 13	5.5 12	7.5 12	7.5 9	2.2 11	4 9
18	25	4.5 18	75 18	7.5 13	4.5 18	7.5 18	7.5 13	7.5 9	3.7 18	4 9
22	32	5.5 22	11 22	15 22	5.5 22	11 22	15 22	15 18	3.7 18	5.5 13
32	50	7.5 32	15 32	18.5 28	7.5 32	15 32	18.5 28	18.5 20	4.5 20	7.5 17
40	60	11 40	18.5 40	22 32	11 40	18.5 40	22 32	22 23	5.5 25	11 24
50	80	15 55	22 50	30 43	15 55	22 50	30 43	30 28	7.5 35	15 32
65	100	18.5 65	30 65	37 60	18.5 65	30 65	33 60	33 35	11 50	22 47
75	110	22 75	37 75	45 64	22 75	37 75	37 64	37 42	13 55	25 52
85	135	25 85	45 85	45 75	25 85	45 85	45 75	45 45	15 65	30 62
100	150	30 105	55 105	55 85	30 105	55 105	55 85	55 65	19 80	37 75
125	150	37 125	60 120	60 90	37 125	60 120	60 90	60 70	22 93	45 90
150	200	45 150	75 150	90 140	45 150	75 150	90 140	90 100	30 125	55 110
180	230	55 180	90 180	110 180	55 180	90 180	110 180	110 120	37 150	75 150
220	260	75 220	132 220	132 200	75 250	132 250	132 200	132 150	45 180	90 180
300	350	90 300	160 300	160 250	90 300	160 300	160 250	200 220	55 220	110 220
400	420	125 400	220 400	225 350	125 400	220 400	225 350	250 300	75 300	150 300
600	660	190 630	330 630	330 500	190 630	330 630	330 500	330 420	110 400	200 400
800	800	220 800	440 800	500 720	220 800	440 800	500 720	500 630	160 630	300 630

Categorie d'impiego
Utilization categories

AC-5a

COMANDO LAMPADE A FLUORESCENZA

Nelle lampade a fluorescenza non rifasate la corrente d'inserzione è circa due volte la corrente nominale del circuito con tempi di accensione fino a 10s. Il contattore va scelto con Inom. in AC 1 moltiplicata per un fattore pari a 1,3 o 1,4. Nelle lampade a fluorescenza rifasate la presenza del condensatore riduce il tempo di accensione a pochi secondi ma si ha una corrente d'inserzione pari a 20 volte la corrente nominale del circuito a causa della carica del condensatore: il contattore deve essere pertanto scelto con una Inom in AC1 ≤ a 20 x Inom del circuito. Se la lampada è dotata di alimentatore elettronico per l'accensione la corrente d'inserzione è pari a 10 volte la corrente nominale del circuito con tempi d'accensione intorno a qualche secondo. Il contattore va scelto con Inom. in AC 1 moltiplicata per un fattore pari a 1.2 o 1.3.

FLUORESCENT LAMP CONTROL

With fluorescent lamps where the power factor has not been corrected, the making current is about twice the nominal current of the circuit with starting times up to 10s. The contactor must be chosen with inom. in AC 1, multiplied by a factor of 1.3 or 1.4. With fluorescent lamps where the power factor has been corrected the presence of the capacitors reduces the starting time to a few seconds but has a making current which is 20 times the nominal current of the circuit due to the charge of the capacitors.
The contactor must be ≤ than 20xinom circuit. If the lamp has an electronic feeder for starting up, the start current is 10 times the nominal current of the circuit with starting times of a few seconds. The contactor must be chosen with inom. in AC 1, multiplied by a factor of 1.2 or 1.3.

Corrente nominale / Nominal current	100V							200V							
Potenza / Power [W]	40		60	80	110		220	40		60	80	110		220	
N. di lampade / No. of lamp	1	2	1	1	1	2	1	1	2	1	1	1	2	1	1
Start current (A)	0.95(1.2)	0.96(1)	0.92	1.17	1.55	2.5	2.7	0.29(0.6)	0.48(0.55)	0.46	0.58	0.78	1.3	1.38	2.5
SEZIONI / SECTIONS 9	18(9)	11(10)	12	9	7	4	4	37(18)	22(20)	23	19	14	8	8	4
12	22(10)	13(11)	14	11	8	5	4	44(21)	27(23)	28	22	16	10	9	5
18	30(15)	18(16)	19	15	11	7	6	62(30)	37(32)	39	31	23	13	13	7
22	32(15)	19(17)	20	16	12	7	7	65(31)	39(34)	41	32	24	14	14	7
32	44(21)	27(23)	28	22	16	10	9	89(43)	54(47)	56	44	33	20	19	10
40	59(29)	36(31)	38	29	22	14	13	120(58)	72(63)	76	60	44	26	25	14
50	84(41)	52(45)	54	42	32	20	18	172(83)	104(90)	108	86	64	38	37	20
65	110(54)	67(59)	70	55	41	26	24	224(108)	135(118)	141	112	83	50	48	26

AC-5a

COMANDO LAMPADE A VAPORI DI MERCURIO

Nelle lampade non rifasate la corrente d'inserzione è circa due volte la corrente nominale del circuito con tempi di accensione fino a 5min. Il contattore va scelto con Inom. in AC 1 pari alla corrente d'inserzione.
Nelle lampade rifasate si ha una corrente d'inserzione pari a 20 volte la corrente nominale del circuito e i tempi di accensione ridotti. Il contattore va scelto con Inom. in AC 1 tenendo conto che il potere di chiusura deve essere ≥ a 20 x Inom circuito.

MERCURY VOPOUR LAMP CONTROL

With lamps where the power factor has not been corrected, the making current is about twice the nominal current of the circuit with starting times up to 5 minutes. The contactor must be chosen with inom. in AC 1, equal to the making current.
With lamps where the power factor has been corrected, the start current is 20 times the nominal current of the circuit with reduced starting times. The contactor must be chosen with inom. in AC 1 considering that the closing power must be ≥ than 20 x inom circuit.

Categorie d'impiego
Utilization categories

Corrente nominale
Nominal current

100V Lampada con basso/alto cos
100V Lamp with low/high cos

200V Lampada con basso/alto cos
200V Lamp with low/high cos

SEZIONI / SECTIONS	100V Lampada con basso/alto cos								200V Lampada con basso/alto cos							
Potenza / Power [W]	40	100	200	250	300	400	700	1000	40	100	200	250	300	400	700	1000
Start current (A)	1.25	2.6	4.6	5.1	6.0	8.0	14.5	21	0.53	1.0	1.9	2.1	2.5	3.3	5.9	8.5
	(0.55)	(1.4)	(2.6)	(3.0)	(3.7)	(4.9)	(8.5)	(12)	(-)	(0.65)	(1.2)	(1.5)	(1.8)	(2.3)	(4.1)	(5.8)
9	8(20)	4(7)	2(4)	2(3)	1(2)	1(1)	-(-)	-(-)	20(-)	11(16)	5(9)	5(7)	4(6)	3(4)	1(2)	1(1)
12	10(23)	5(9)	2(5)	2(4)	2(3)	1(1)	-(1)	-(1)	24(-)	13(20)	6(10)	6(8)	5(7)	3(5)	2(3)	1(2)
18	14(32)	6(12)	3(6)	3(6)	3(4)	2(3)	1(2)	-(1)	33(-)	18(27)	9(15)	8(12)	7(10)	5(7)	3(3)	2(3)
22	15(34)	7(13)	4(7)	3(6)	3(5)	2(3)	1(2)	-(1)	35(-)	19(29)	10(15)	9(12)	7(10)	5(8)	3(4)	2(3)
32	20(47)	10(18)	5(10)	5(8)	4(7)	3(5)	1(3)	1(2)	49(-)	26(40)	13(21)	12(17)	10(14)	7(11)	4(6)	3(4)
40	28(63)	13(25)	7(13)	6(11)	5(9)	4(7)	2(4)	1(2)	66(-)	35(53)	18(29)	16(23)	14(19)	10(15)	5(8)	4(6)
50	40(90)	19(35)	10(19)	9(16)	8(13)	6(10)	3(5)	2(4)	94(-)	50(76)	26(41)	23(33)	20(27)	15(21)	8(12)	6(8)
65	52(118)	25(46)	14(25)	12(21)	10(17)	8(13)	4(7)	3(5)	122(-)	65(100)	34(54)	30(43)	26(36)	19(28)	11(15)	7(11)

COMANDO LAMPADE A VAPORI DI SODIO

AC-5a

Sono lampade con tempi di accensione fino a 5 min. con una corrente d'inserzione pari a 1.7-2.2 volte la corrente nominale del circuito. Il contattore va scelto in AC 1 pari alla corrente d'inserzione. Es.:
Im circ. = 20A
I contattore = 20A * 2.2 = 44A
090C32 con 50A AC-1

SODIUM VOPOUR LAMP CONTROL

These are lamps with starting times f up to 5 min. with a start current of 1.7 - 2.2 times the nominal current of the circuit. The contactor must be chosen with inom. in AC 1, equal to the start current. Es.:
Im circ. = 20A
I contactor = 20A * 2.2 = 44A
090C32 with 50A AC-1

COMANDO LAMPADE AD INCANDESCENZA

AC-5b

Queste lampade hanno una corrente d'inserzione di circa 15 volte la corrente nominale del circuito che si annulla dopo pochi millisecondi. Il picco è dovuto al brusco passaggio del filamento da freddo con altissima resistenza a caldo con bassissima resistenza. Il contattore va scelto con Inom in AC 1 e tenendo conto che il potere d'interruzione deve essere ≥ alla corrente d'inserzione.

INCANDESCENT LAMP CONTROL

These lamps have a making current which is about 15 times the nominal current of the circuit and which is cancelled after a few milliseconds. The peak is due to the sharp passage of the filament from cold with very high resistance to hot with very low resistance. The contactor must be chosen with inom. in AC 1 and taking into account that the breaking capacity must be ≥ than the making current.

Corrente d'impiego
Rated operational current [A]

100V (n. di lampade)
100V (n. lamps)

200V (n. di lampade)
200V (n. lamps)

SEZIONI / SECTIONS	100V (n. di lampade)								200V (n. di lampade)							
Potenza / Power [W]	100	150	200	250	300	500	1000	1500	100	150	200	250	300	500	1000	1500
9	11	7	5	4	3	2	1	-	22	14	11	8	7	4	2	1
12	13	8	6	5	4	2	1	-	26	17	13	10	8	5	2	1
18	18	12	9	7	6	3	1	1	36	24	18	14	12	7	3	2
22	19	12	9	7	6	3	1	1	38	25	19	15	12	7	3	2
32	26	17	13	10	8	5	2	1	52	34	26	20	17	10	5	3
40	35	23	17	14	11	7	3	2	70	46	35	28	23	14	7	4
50	50	33	25	20	15	10	5	3	100	66	50	40	33	20	10	6
65	65	42	32	26	19	13	6	4	130	85	65	52	42	26	13	8

Categorie d'impiego
Utilization categories

AC-6a

COMANDO DI TRASFORMATORI

L'inserzione di trasformatori è contraddistinta da un picco d'inserzione che può arrivare fino a 30 x In dovuto ad un elevato assorbimento di correnti magnetizzanti. Ovviamente nel dimensionamento del contattore occorre che il potere d'interruzzione sia ≥ alla corrente d'inserzione. Questa tabella è applicabile quando la corrente d'inserzione è inferiore a 20 In circuito.

TRASFORMER CONTROL

The connection of transformers is distinguished by a start peak which can reach 30 x In. due to high absorption of magnetising current. Obviously when dimensioning the contactor it is necessary for the breaking capacity to be ≥ than the making current.

SEZIONI / SECTIONS	Monofase Mono phase				Trifase Tri phase			
	220V		440V		220V		440V	
	[kVA]	[A]	[kVA]	[A]	[kVA]	[A]	[kVA]	[A]
9	1	5	1.5	3	2	5	2.5	3
12	1.5	7.5	2	5	3	7.5	4	5
18	2	9	3	7	3.5	9	5	7
22	2.5	10	4	9.5	4	10	7.5	9.5
32	3	13	5	12	5	13	10	12
40	4	17	7.5	16	6.5	17	12	16
50	5	25	10	24	10	25	18	24
65	7	32	15	32	12	32	25	32
75	8	35	17	35	13	35	27	35
85	9	40	18	40	15	40	30	40
100	10	46	20	45	18	46	35	45
125	15	62	25	55	25	62	42	55
150	17	75	33	75	30	75	60	75
180	20	90	40	90	35	90	70	90
220	25	110	50	110	42	110	85	110
300	33	150	57	130	57	150	100	130
400	44	200	90	200	75	200	150	200
600	65	300	130	300	110	300	250	300
800	90	400	175	400	150	400	300	400

Categorie d'impiego
Utilization categories

AC-6b

COMANDO DI CONDENSATORI

L'utilizzo dei condensatori negli impianti di rifasamento è caratterizzato da picchi di corrente che il carico capacitivo impone alla rete all'atto dell'inserzione. Si possono comandare condensatori singoli o batterie. Nel caso di più di una batteria di condensatori i singoli gradini vengono inseriti in parallelo uno con l'altro, si ha così una sorgente addizionale di energia dovuta al trasferimento di energia della batteria sotto tensione a quella messa in servizio. Questo rappresenta un carico supplementare per il contattore. Occorre prevedere quindi l'utilizzo di induttanze e resistenze per aumentare il carico ammissibile al contattore.
Le induttanze smorzano le sollecitazioni che nascono quando si inseriscono dei condensatori in parallelo ad altri già collegati in rete e carichi (inserimento a gradini). Le resistenze proteggono i contatti di potenza del contattore durante l'inserzione del condensatore garantendo la vita elettrica dei circuiti. I contattori per comando di condensatori hanno una vita elettrica inferiore a quelli per il comando dei motori a causa del maggior consumo dei contatti di potenza dovuto all'interruzione di corrente altamente sfasata con cosϕ tendenti a zero. Occorre quindi fare attenzione al picco di corrente durante l'inserzione.

CAPACITORS CONTROL

The use of capacitors in power factor correction systems is characterised by peaks of current which the capacitive charge imposes on the network when power is started. It is possible to control single capacitors or batteries of capacitors. In the case of more than one battery of capacitors to be connected separately, an additional source of power is created due to the transfer of power from the empowered battery to the one placed into service.
This represents a supplementary charge for the contactor, and it is therefore necessary to provide for the use of impedances and resistances to increase the contactor's admissible charge.
The impedances reduce the stress generated when condensers are connected parallel to others already connected to the network and charges (connected in steps). The resistances protect the contactor's power contacts during connection of the condenser, guaranteeing the electrical life of the circuits.

Comando condensatori
Capacitors control

SEZIONI / SECTIONS	Monofase Mono phase				Trifase Tri phase					
	200~220V		400~440V		200~220V		400~440V		500~550V	
	[Kvar]	[A]	[Kvar]	[A]	[Kvar]	[A]	[Kvar]	[A]	[Kvar]	[A]
9	1,2	6	1,7	4,3	2	6	3	4,3	3	3,5
12	1,8	9	2,4	6	3	9	4	6	5	6
18	2,4	12	3,6	9	4	12	6	9	7	10
22	3	15	6	15	5	15	10	15	10	16
32	5	25	9,6	24	9	25	16	24	15	22
40	6,4	32	12	30	11	32	20	30	20	25
50	9	45	16	40	15	45	27	40	25	37
65	10	50	20	50	17	50	34	50	30	46
75	13	58	24	58	20	58	40	58	40	52
85	15	60	30	60	22	60	45	60	45	56
100					24	64	48	64		
125					29	76	58	76		
150					35	91	70	92		
180					42	109	84	110		
220					58	152	115	152		
300					69	182	139	182		
400					92	242	185	242		
600					145	382	291	382		
800					185	485	369	485		

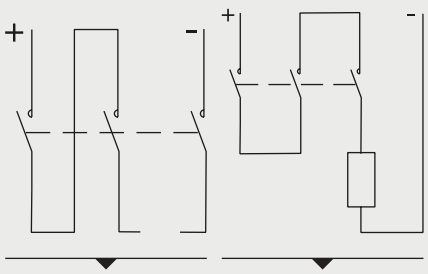
Categorie d'impiego
Utilization categories

DC-1

DC-3
DC-5

SEZIONI / SECTIONS

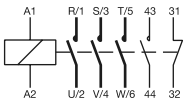
Poli in serie Poles in series		Corrente impiego Rated operational current le [A] DC-1				Corrente impiego Rated operational current le [A] DC-3 / DC-5			
		24V	48V	110V	220V	24V	48V	110V	220V
9	2	10	10	6	3	8	4	2,5	0,8
9	3	10	10	8	8	8	6	4	2
12	2	12	12	10	7	12	6	4	1.2
12	3	12	12	12	12	12	10	8	4
18	2	18	18	13	8	12	6	4	1.2
18	3	18	18	18	18	12	10	8	4
22	2	20	20	15	10	20	15	8	2
22	3	20	20	20	20	20	20	15	8
32	2	25	25	25	12	25	20	10	3
32	3	25	25	25	22	25	25	20	10
40	2	35	35	25	12	35	20	10	3
40	3	35	35	35	30	35	30	20	10
50	2	50	40	35	15	45	25	15	3.5
50	3	50	50	50	40	50	35	30	12
65	2	50	40	35	15	45	25	15	3.5
65	3	65	65	65	50	50	35	30	12
75	2	75	65	50	20	65	40	20	5
75	3	75	75	75	55	80	60	50	20
85	2	80	65	50	20	65	40	20	5
85	3	80	80	80	60	80	60	50	20
100	2	100	100	80	50	100	60	40	30
100	3	100	100	100	80	100	90	80	50
125	2	120	100	80	50	120	60	40	30
125	3	120	120	100	80	120	90	80	50
150	2	150	150	150	150	150	130	120	80
150	3	80	80	80	60	80	60	50	20
180	2	180	180	150	150	180	150	120	80
180	3	180	180	180	180	180	180	150	100
220	2	220	180	150	150	220	150	120	80
220	3	220	220	220	220	220	220	150	100
300	2	300	240	200	200	300	200	150	90
300	3	300	300	300	300	300	280	200	150
400	2	400	240	200	200	400	200	150	90
400	3	400	400	400	300	400	280	200	150
600	2	630	630	630	630	630	630	630	630
600	3	630	630	630	630	630	630	630	630
800	2	800	800	630	630	800	630	630	630
800	3	800	800	800	800	800	630	630	630



2 poli in serie
2 poles in series

3 poli in serie
3 poles in series

Sezioni 9-12-18-22
9-12-18-22 sections



Contattore / Contactor

g cod

Contatto ausiliario1NO + 1NC integrato nel contattore / Auxiliary contact 1NO - 1NC integrated in the contactor

Sezione 9A / 9A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC9B-24**
230V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC9B-230**
400V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC9B-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			25A
AC3	200~240V	2,5 kW	11A
	380~440V	**4 kW**	**9A**
	500~550V	4 kW	7A
	690V	4 kW	6A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		25A
Monofase / Mono-phase	115V	0,5 HP
	230V	1 HP
Trifase / Tri-phase	200V	2 HP
	230V	3 HP
	460V	5 HP
	575V	7,5 HP

Sezione 12A / 12A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC12B-24**
230V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC12B-230**
400V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC12B-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			25A
AC3	200~240V	3 kW	13A
	380~440V	**5,5 kW**	**12A**
	500~550V	7,5 kW	12A
	690V	7,5 kW	9A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		25A
Monofase / Mono-phase	115V	0,75 HP
	230V	2 HP
Trifase / Tri-phase	200V	3 HP
	230V	5 HP
	460V	7,5 HP
	575V	10 HP

Sezione 18A / 18A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC18B-24**
230V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC18B-230**
400V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC18B-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			32A
AC3	200~240V	4,5 kW	18A
	380~440V	**7,5 kW**	**18A**
	500~550V	7,5 kW	13A
	690V	7,5 kW	9A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		40A
Monofase / Mono-phase	115V	1 HP
	230V	3 HP
Trifase / Tri-phase	200V	5 HP
	230V	5 HP
	460V	10 HP
	575V	15 HP

Sezione 22A / 22A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC22B-24**
230V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC22B-230**
400V - 50/60 Hz Tensioni di comando / Coil voltage	0,34	**090MC22B-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

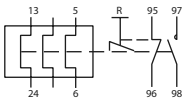
AC1			40A
AC3	200~240V	5,5 kW	22A
	380~440V	**11 kW**	**22A**
	500~550V	15 kW	20A
	690V	15 kW	18A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		40A
Monofase / Mono-phase	115V	2 HP
	230V	3 HP
Trifase / Tri-phase	200V	7,5 HP
	230V	10 HP
	460V	15 HP
	575V	20 HP

Sezioni 9-12-18-22
9-12-18-22 sections

Relè termico differenziale / Thermal O/L relay



Classe d'intervento 10A / Trip class 10A

Sezioni 9A-12A-18A-22A / 9A-12A-18A-22A Sections

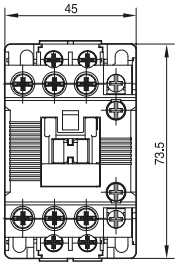
	g	cod
0.25 ÷ 0.4 Taratura (A) / Setting range (A)	0,17	**090MT32-04**
0.4 ÷ 0.63 Taratura (A) / Setting range (A)	0,17	**090MT32-063**
0.63 ÷ 1 Taratura (A) / Setting range (A)	0,17	**090MT32-1**
1 ÷ 1.6 Taratura (A) / Setting range (A)	0,17	**090MT32-1V6**
1.6 ÷ 2.5 Taratura (A) / Setting range (A)	0,17	**090MT32-2V5**
2.5 ÷ 4 Taratura (A) / Setting range (A)	0,17	**090MT32-4**
4 ÷ 6 Taratura (A) / Setting range (A)	0,17	**090MT32-6**
6 ÷ 9 Taratura (A) / Setting range (A)	0,17	**090MT32-9**
9 ÷ 13 Taratura (A) / Setting range (A)	0,17	**090MT32-13**
12 ÷ 18 Taratura (A) / Setting range (A)	0,17	**090MT32-18**

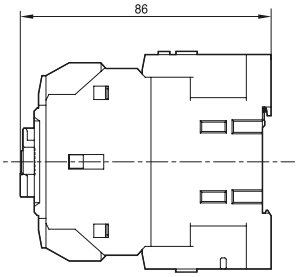
Sistema di montaggio separato
Separate mounting system

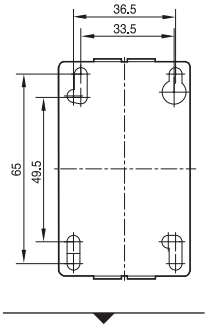
	g	cod
Adattatore montaggio barra DIN 35 Bar mounting adapter DIN 35	38	**090UZ-32**

Sezioni 9-12-18-22
9-12-18-22 sections

Contattore / Contactor

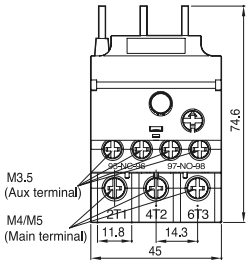


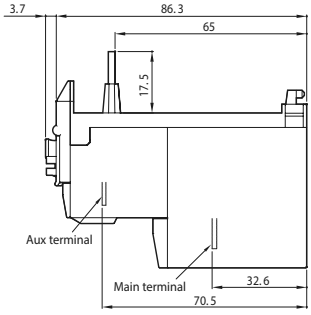




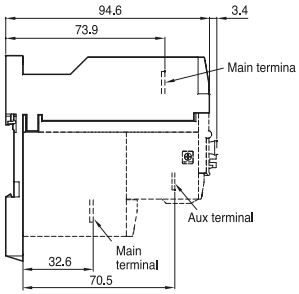
Dime montaggio
Fixing dimension

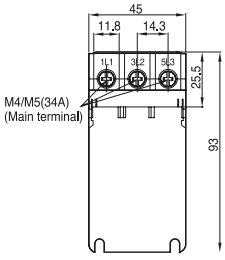
Relè termico differenziale / Thermal O/L relay

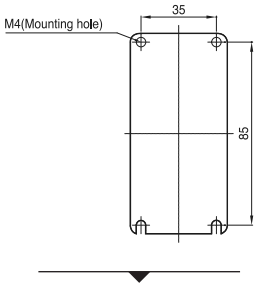




Sistema di montaggio separato / Separate mounting system

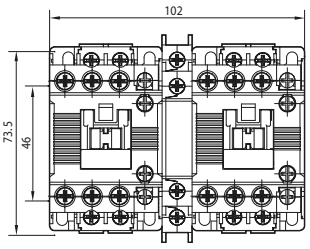


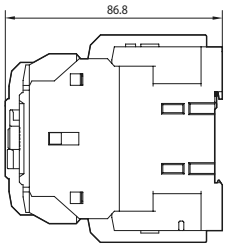


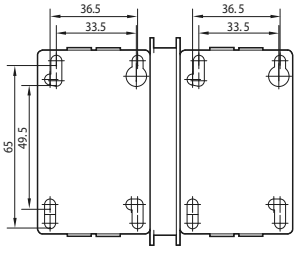


Dime montaggio
Fixing dimension

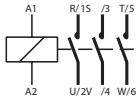
Interblocco meccanico (vedi accessori) / Mechanical interlock (see accessories)







Sezioni 32 - 40
32 - 40 sections



Contattore / Contactor

g cod

Classe d'intervento 10A / Trip calss 10A

Sezione 32A / 32A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	0,55	**090MC32A-24**
230V - 50/60 Hz Tensioni di comando / Coil voltage	0,55	**090MC32A-230**
400V - 50/60 Hz Tensioni di comando / Coil voltage	0,55	**090MC32A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			50A
AC3	200~240V	7,5 kW	32A
	380~440V	**15 kW**	**32A**
	500~550V	18,5 kW	28A
	690V	18,5 kW	20A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		50A
Monofase / Mono-phase	115V	2 HP
	230V	3 HP
Trifase / Tri-phase	200V	7,5 HP
	230V	10 HP
	460V	20 HP
	575V	25 HP

Sezione 40A / 40A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	0,55	**090MC40A-24**
230V - 50/60 Hz Tensioni di comando / Coil voltage	0,55	**090MC40A-230**
400V - 50/60 Hz Tensioni di comando / Coil voltage	0,55	**090MC40A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

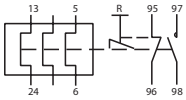
AC1			60A
AC3	200~240V	11 kW	40A
	380~440V	**18 kW**	**40A**
	500~550V	22 kW	32A
	690V	22 kW	32A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		60A
Monofase / Mono-phase	115V	3 HP
	230V	27,5 HP
Trifase / Tri-phase	200V	15 HP
	230V	15 HP
	460V	30 HP
	575V	30 HP

Relè termico differenziale / Thermal O/L relay

g cod



Classe d'intervento 10A / Trip class 10A

Sezioni 32A-40A / 32A-40A Sections

18 ÷ 25 Taratura (A) / Setting range (A)	0,17	**090MT32-25**
24 ÷ 32 Taratura (A) / Setting range (A)	0,17	**090MT32-32**
28 ÷ 40 Taratura (A) / Setting range (A)	0,17	**090MT32-40**

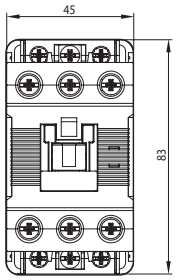
Sistema di montaggio separato
Separate mounting system

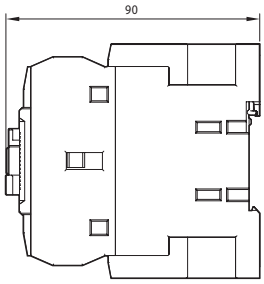
g cod

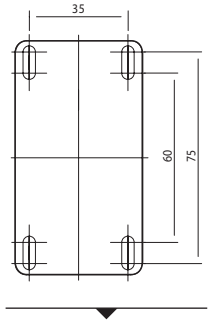
Adattatore montaggio barra DIN 35 Bar mounting adapter DIN 35	38	**090UZ-32**

Sezioni 32 - 40
32 - 40 sections

Contattore / Contactor

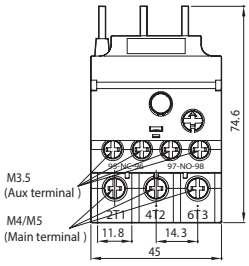


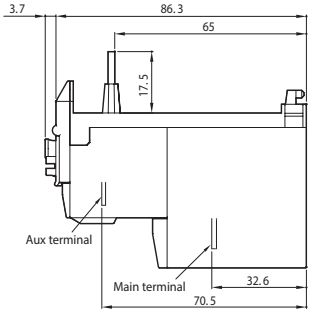




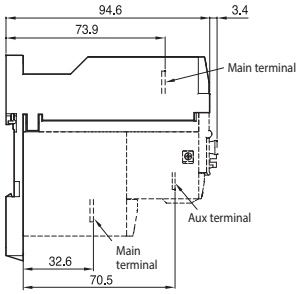
Dime montaggio
Fixing dimension

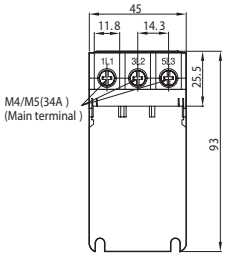
Relè termico differenziale / Thermal O/L relay

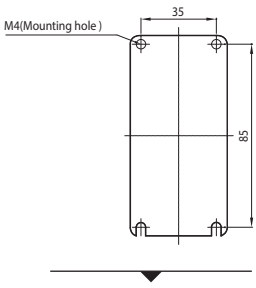




Sistema di montaggio separato / Separate mounting system

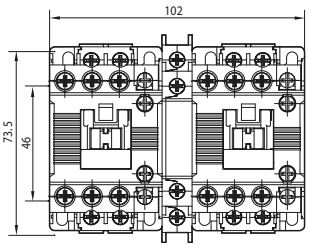


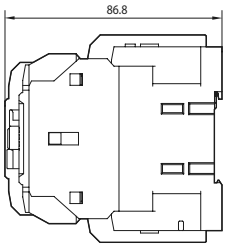


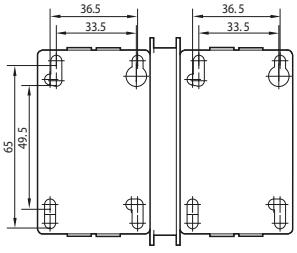


Dime montaggio
Fixing dimension

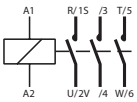
Interblocco meccanico (vedi accessori) / Mechanical interlock (see accessories)







Sezione 65
65 section



Contattore / Contactor

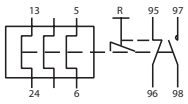
	g	cod
24V - 50/60 Hz Tensioni di comando / Coil voltage	1,05	**090MC65A-24**
230V - 50/60 Hz Tensioni di comando / Coil voltage	1,05	**090MC65A-230**
400V - 50/60 Hz Tensioni di comando / Coil voltage	1,05	**090MC65A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			100A
AC3	200~240V	18,5 kW	65A
	380~440V	**30 kW**	**65A**
	500~550V	33 kW	60A
	690V	33 kW	35A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		100A
Monofase / Mono-phase	115V	5 HP
	230V	15 HP
Trifase / Tri-phase	200V	25 HP
	230V	30 HP
	460V	50 HP
	575V	60 HP



Relè termico differenziale / Thermal O/L relay

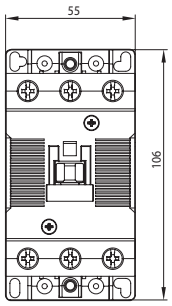
	g	cod
Classe d'intervento 20 / Trip class 20		
34 ÷ 50 Taratura (A) / Setting range (A)	0,32	**090MT63-50**
45 ÷ 65 Taratura (A) / Setting range (A)	0,32	**090MT63-65**

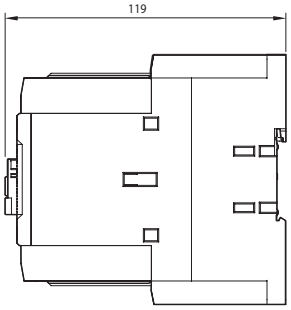
Sistema di montaggio separato
Separate mounting system

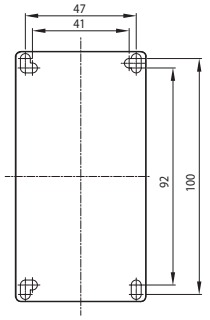
	g	cod
Adattatore montaggio barra DIN 35 Bar mounting adapter DIN 35	38	**090UZ-65**

Sezione 65
65 section

Contattore / Contactor

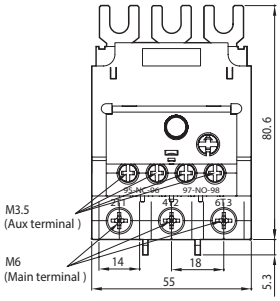


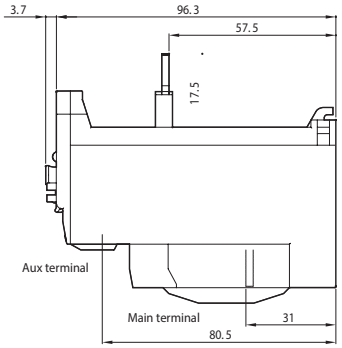




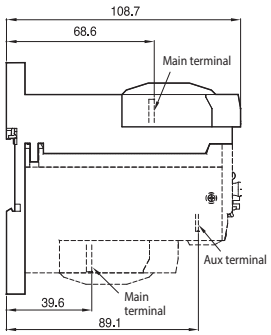
Dime montaggio
Fixing dimension

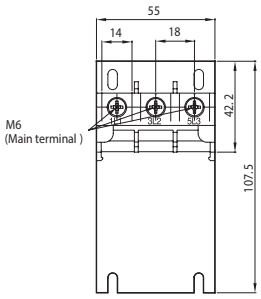
Relè termico differenziale / Thermal O/L relay

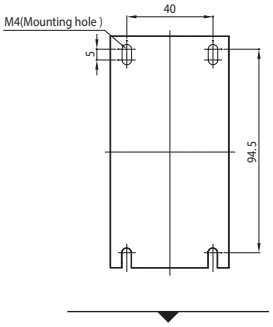




Sistema di montaggio separato / Separate mounting system

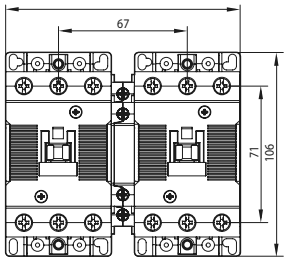


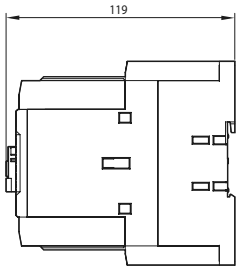


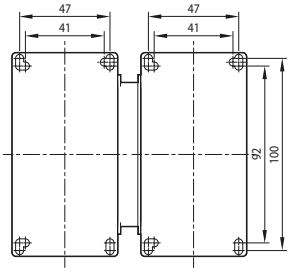


Dime montaggio
Fixing dimension

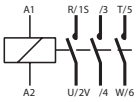
Interblocco meccanico (vedi accessori) / Mechanical interlock (see accessories)







Sezioni 85 - 100
85 - 100 sections



Contattore / Contactor

g cod

Sezione 85A / 85A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	1,05	**090MC85A-24**
230V - 50/60 Hz Tensioni di comando / Coil voltage	1,05	**090MC85A-230**
400V - 50/60 Hz Tensioni di comando / Coil voltage	1,05	**090MC85A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			135A
AC3	200~240V	11 kW	85A
	380~440V	**18 kW**	**85A**
	500~550V	22 kW	75A
	690V	22 kW	45A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		135A
Monofase / Mono-phase	115V	7,5 HP
	230V	15 HP
Trifase / Tri-phase	200V	40 HP
	230V	40 HP
	460V	60 HP
	575V	75 HP

Sezione 100A / 100A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	2,0	**090MC100A-24**
230V - 50/60 Hz Tensioni di comando / Coil voltage	2,0	**090MC100A-230**
400V - 50/60 Hz Tensioni di comando / Coil voltage	2,0	**090MC100A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

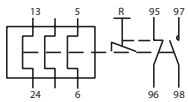
AC1			160A
AC3	200~240V	30 kW	105A
	380~440V	**55 kW**	**105A**
	500~550V	55 kW	85A
	690V	45 kW	65A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		160A
Monofase / Mono-phase	115V	10 HP
	230V	20 HP
Trifase / Tri-phase	200V	30 HP
	230V	40 HP
	460V	75 HP
	575V	75 HP

Relè termico differenziale / Thermal O/L relay

g cod



Classe d'intervento 20 / Trip class 20

Sezioni 85A-100A / 85A-100A Sections

54 ÷ 75 Taratura (A) / Setting range (A)	0,50	**090MT95-75**
63 ÷ 85 Taratura (A) / Setting range (A)	0,50	**090MT95-85**
80 ÷ 100 Taratura (A) / Setting range (A)	0,50	**090MT95-100**

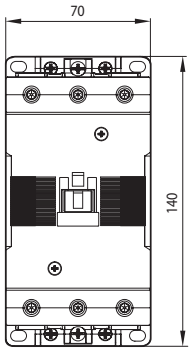
Sistema di montaggio separato
Separate mounting system

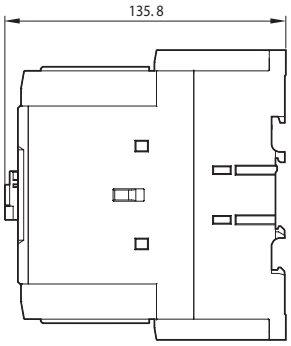
g cod

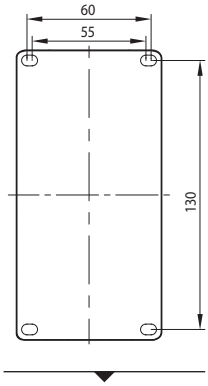
Adattatore montaggio barra DIN 35 Bar mounting adapter DIN 35	38	**090UZ-95**

Sezioni 85 - 100
85 - 100 sections

Contattore / Contactor

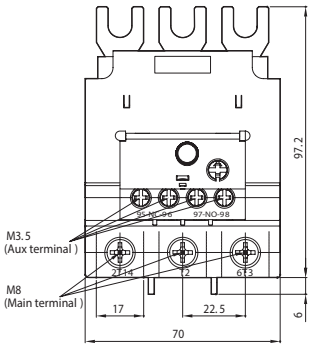


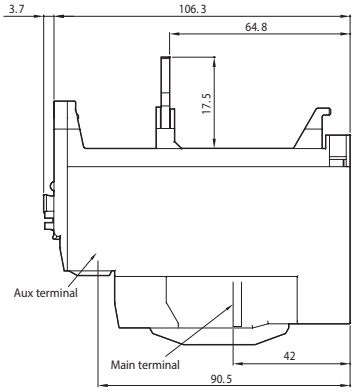




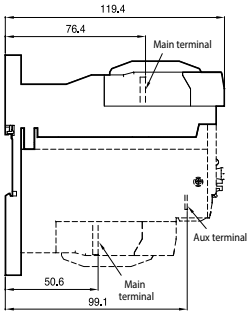
Dime montaggio
Fixing dimension

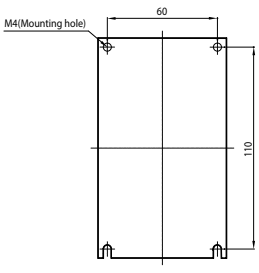
Relè termico differenziale / Thermal O/L relay

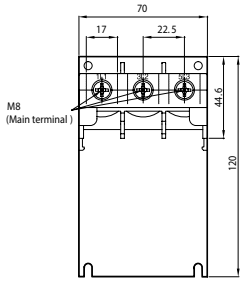




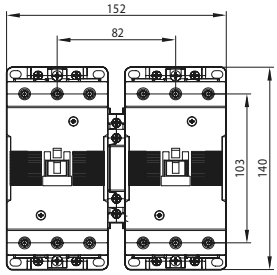
Sistema di montaggio separato / Separate mounting system

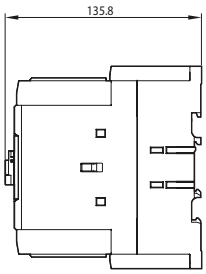


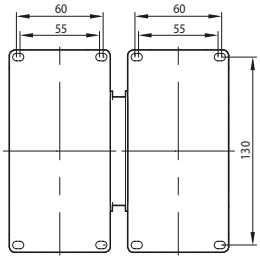




Interblocco meccanico (vedi accessori) / Mechanical interlock (see accessories)

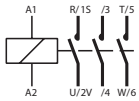






Sezione 150
150 section

Contattore / Contactor



	g	cod
24V - 50/60 Hz Tensioni di comando / Coil voltage	2,4	**090MC150A-24**
230V - 50/60 Hz Tensioni di comando / Coil voltage	2,4	**090MC150A-100**
400V - 50/60 Hz Tensioni di comando / Coil voltage	2,4	**090MC150A-400**

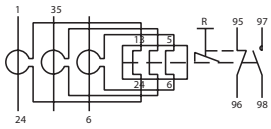
Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			210A
AC3	200~240V	45 kW	150A
	380~440V	**75 kW**	**150A**
	500~550V	70 kW	100A
	690V	55 kW	60A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		160A
Monofase / Mono-phase	115V	15 HP
	230V	25 HP
Trifase / Tri-phase	200V	40 HP
	230V	50 HP
	460V	100 HP
	575V	75 HP

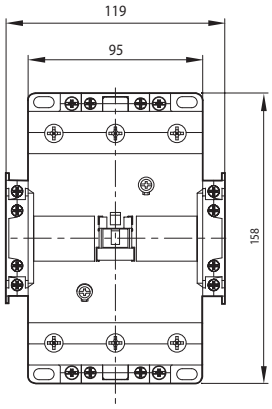
Relè termico differenziale / Thermal O/L relay

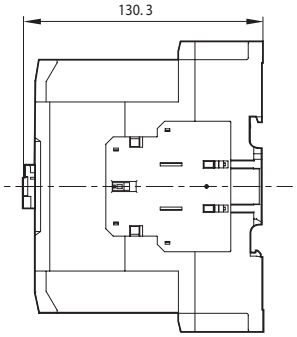


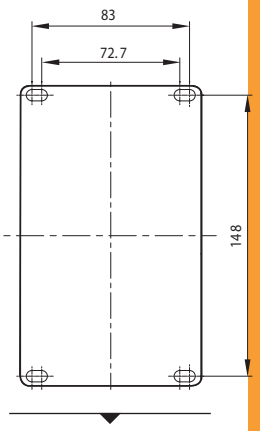
	g	cod
Classe d'intervento 20 / Trip class 20		
65 ÷ 130 Taratura (A) / Setting range (A)	2,5	**090MT150-130**
110 ÷ 150 Taratura (A) / Setting range (A)	2,5	**090MT150-150**

Sezione 150
150 section

Contattore / Contactor

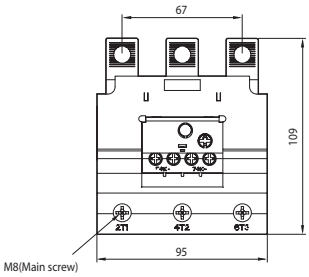


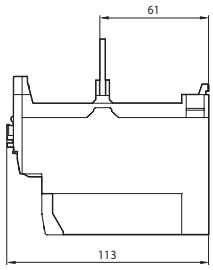




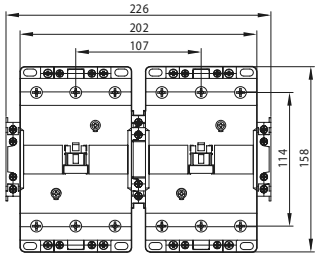
Dime montaggio
Fixing dimension

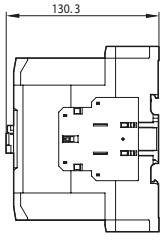
Relè termico differenziale / Thermal O/L relay

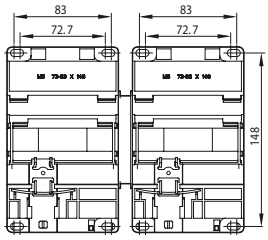




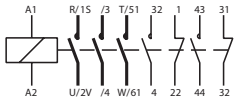
Interblocco meccanico (vedi accessori) / Mechanical interlock (see accessories)







Sezioni 185 - 225
185 - 225 sections



Contattore / Contactor

g cod

Completo di n.2 090A11 / Complete with n. 2 090A11

Sezione 185A / 185A Section

24V - 50/60 Hz 24VCC Tensioni di comando / Coil voltage	5,4	**090MC185A-24**
110÷240V - 50/60 Hz Tensioni di comando / Coil voltage	5,4	**090MC185A-240**
400V - 50/60 Hz Tensioni di comando / Coil voltage	5,4	**090MC185A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			230A
AC3	200~240V	55 kW	185A
	380~440V	**90 kW**	**185A**
	500~550V	110 kW	180A
	690V	110 kW	180A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		160A
Monofase / Mono-phase	115V	15 HP
	230V	30 HP
Trifase / Tri-phase	200V	60 HP
	230V	60 HP
	460V	125 HP
	575V	125 HP

Completo di n.2 090A11 / Complete with n. 2 090A11

Sezione 225A / 225A Section

24V - 50/60 Hz 24VCC Tensioni di comando / Coil voltage	5,4	**090MC225A-24**
110÷240V - 50/60 Hz Tensioni di comando / Coil voltage	5,4	**090MC225A-240**
400V - 50/60 Hz Tensioni di comando / Coil voltage	5,4	**090MC225A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

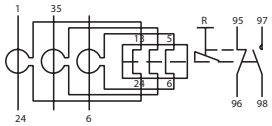
AC1			275A
AC3	200~240V	75 kW	225A
	380~440V	**132 kW**	**225A**
	500~550V	132 kW	200A
	690V	140 kW	150A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		210A
Monofase / Mono-phase	115V	15 HP
	230V	25 HP
Trifase / Tri-phase	200V	60 HP
	230V	75 HP
	460V	150 HP
	575V	150 HP

Relè termico differenziale / Thermal O/L relay

g cod



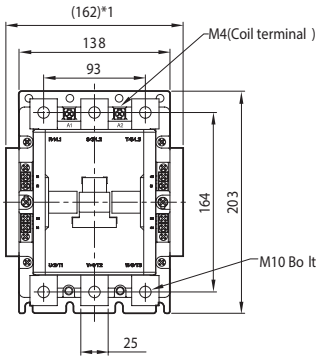
Classe d'intervento 20 / Trip class 20

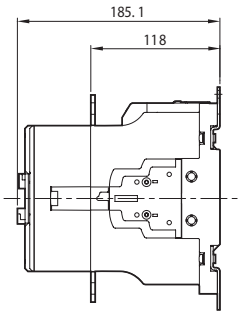
Sezioni 185A-225A / 185A-225A Sections

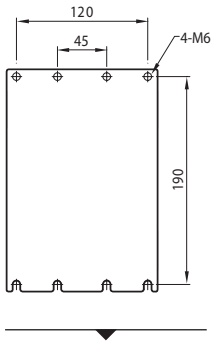
120 ÷ 185 Taratura (A) / Setting range (A)	2,6	**090MT225-185**
160 ÷ 240 Taratura (A) / Setting range (A)	2,6	**090MT225-240**

Sezioni 185 - 225
185 - 225 sections

Contattore / Contactor

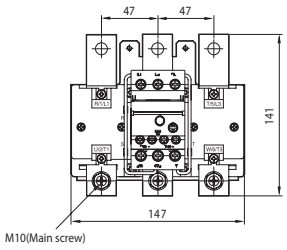


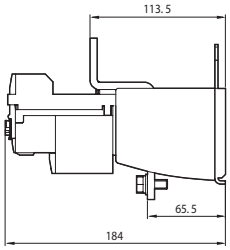




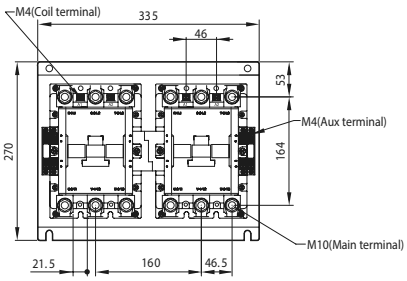
Dime montaggio
Fixing dimension

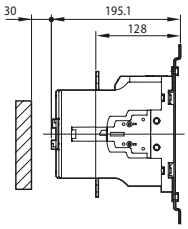
Relè termico differenziale / Thermal O/L relay

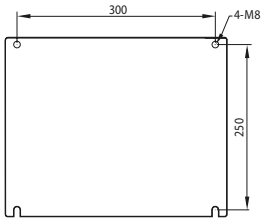




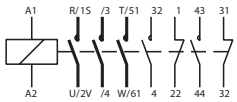
Interblocco meccanico (vedi accessori) / Mechanical interlock (see accessories)







Sezioni 330 - 400
330 - 400 sections



Contattore / Contactor

g cod

Completo di n.2 090A11 / Complete with n. 2 090A11

Sezione 330A / 330A Section

110÷240V - AC/DC Tensioni di comando / Coil voltage	9,2	**090MC330A-240**
400V - 50/60 Hz Tensioni di comando / Coil voltage	9,2	**090MC330A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			350A
AC3	200~240V	90 kW	330A
	380~440V	**160 kW**	**330A**
	500~550V	160 kW	280A
	690V	200 kW	225A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		30A
Trifase / Tri-phase	200V	100 HP
	230V	125 HP
	460V	250 HP
	575V	250 HP

Completo di n.2 090A11 / Complete with n. 2 090A11

Sezione 400A / 400A Section

110÷240V - AC/DC Tensioni di comando / Coil voltage	9,2	**090MC400A-240**
400V - 50/60 Hz Tensioni di comando / Coil voltage	9,2	**090MC400A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

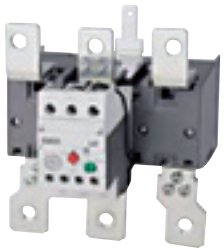
AC1			450A
AC3	200~240V	125 kW	400A
	380~440V	**222 kW**	**400A**
	500~550V	225 kW	350A
	690V	250 kW	300A

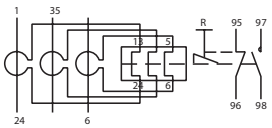
Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		450A
Trifase / Tri-phase	200V	125 HP
	230V	150 HP
	460V	300 HP
	575V	300 HP

Relè termico differenziale / Thermal O/L relay

g cod





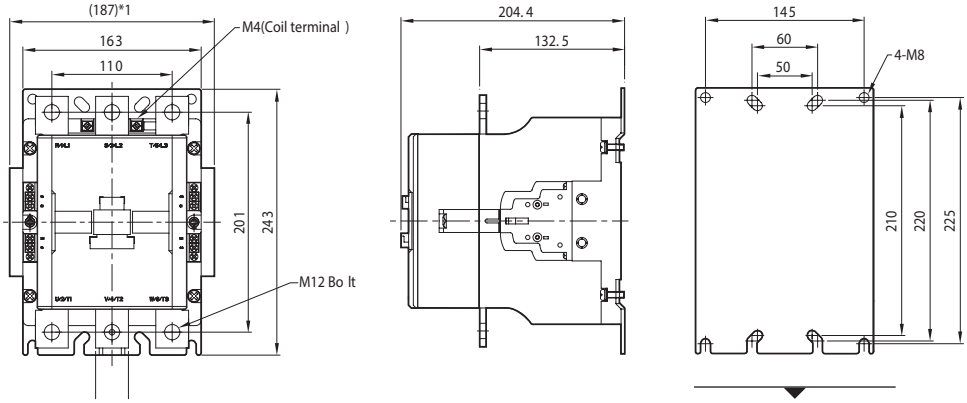
Classe d'intervento 20 / Trip class 20

Sezioni 330A-400A / 330A-400A Sections

200 ÷ 300 Taratura (A) / Setting range (A)	2,5	**090MT400-330**
260 ÷ 400 Taratura (A) / Setting range (A)	2,5	**090MT400-400**

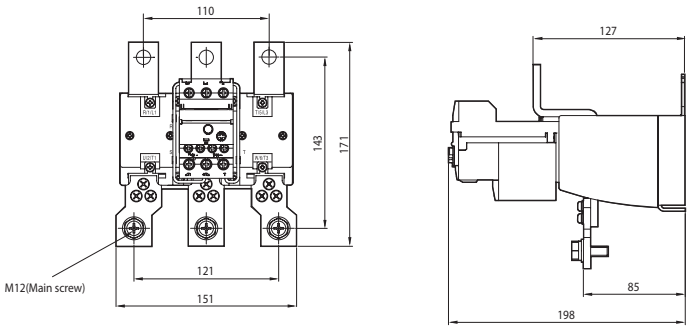
Sezioni 330 - 400
330 - 400 sections

Contattore / Contactor

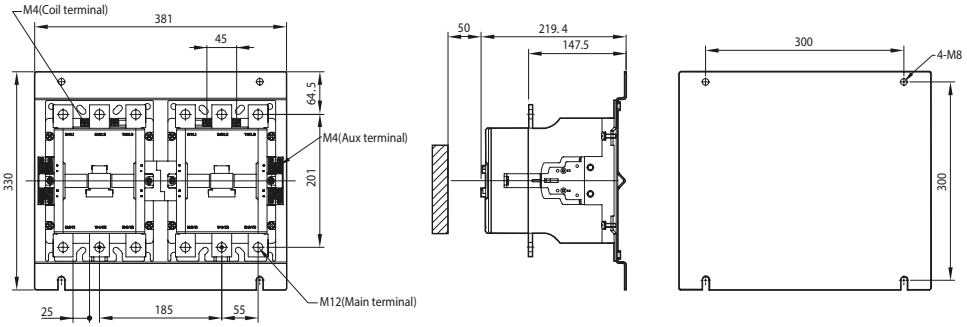


Dime montaggio
Fixing dimension

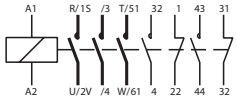
Relè termico differenziale / Thermal O/L relay



Interblocco meccanico (vedi accessori) / Mechanical interlock (see accessories)



Sezioni 630 - 800
630 - 800 sections



Contattore / Contactor

g cod

Completo di n.2 090A11 / Complete with n. 2 090A11

Sezion 630A / 630A Section

110÷240V - AC/DC Tensioni di comando / Coil voltage	9,2	**090MC630A-240**
400V - 50/60 Hz Tensioni di comando / Coil voltage	9,2	**090MC630A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			660A
AC3	200~240V	190 kW	630A
	380~440V	**330 kW**	**630A**
	500~550V	330 kW	500A
	690V	400 kW	420A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		660A
Trifase / Tri-phase	200V	200 HP
	230V	250 HP
	460V	500 HP
	575V	500 HP

Completo di n.2 090A11 / Complete with n. 2 090A11

Sezione 800A / 800A Section

110÷240V - AC/DC Tensioni di comando / Coil voltage	9,2	**090MC800A-240**
400V - 50/60 Hz Tensioni di comando / Coil voltage	9,2	**090MC800A-400**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

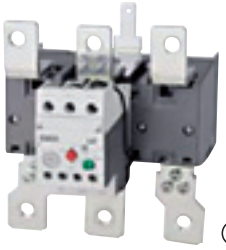
AC1			900A
AC3	200~240V	220 kW	4800A
	380~440V	**440 kW**	**800A**
	500~550V	500kW	500A
	690V	500 kW	500A

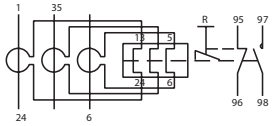
Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		900A
Trifase / Tri-phase	200V	200 HP
	230V	300 HP
	460V	600 HP
	575V	600 HP

Relè termico differenziale / Thermal O/L relay

g cod





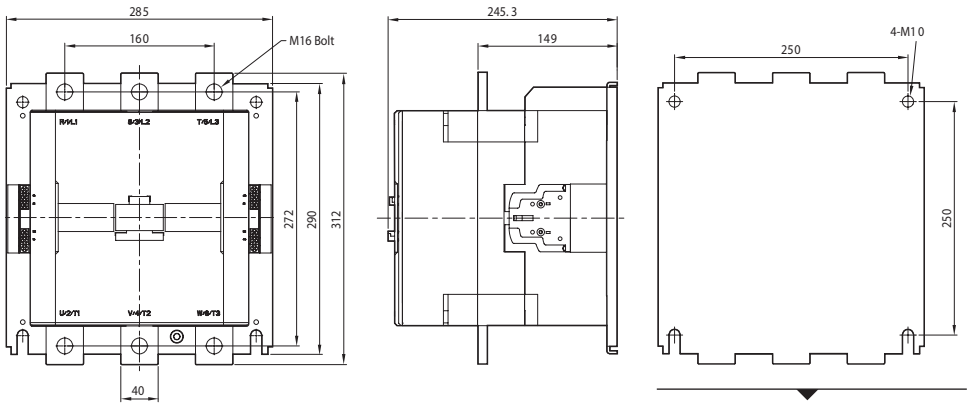
Classe d'intervento 20 / Trip class 20

Sezioni 630A- 800A / 630A-800A Sections

400 ÷ 630 Taratura (A) / Setting range (A)	11,5	**090MT800-630**
520 ÷ 800 Taratura (A) / Setting range (A)	11,5	**090MT800-800**

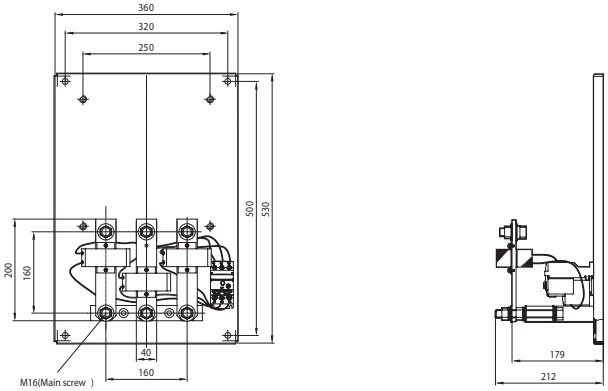
Sezioni 630 - 800
630 - 800 sections

Contattore / Contactor

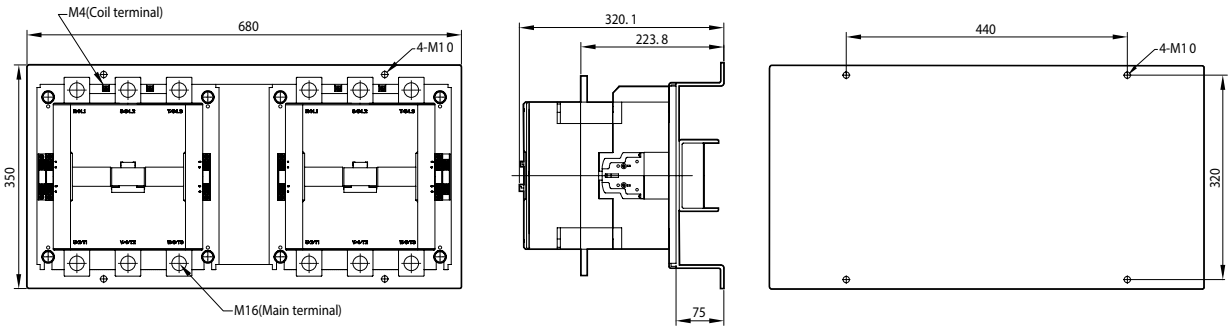


Dime montaggio
Fixing dimension

Relè termico differenziale / Thermal O/L relay

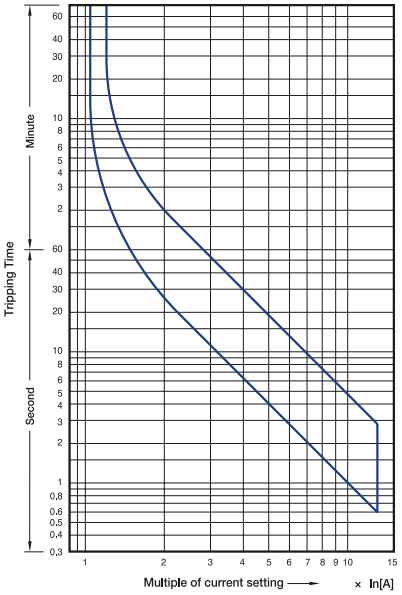


Interblocco meccanico (vedi accessori) / Mechanical interlock (see accessories)

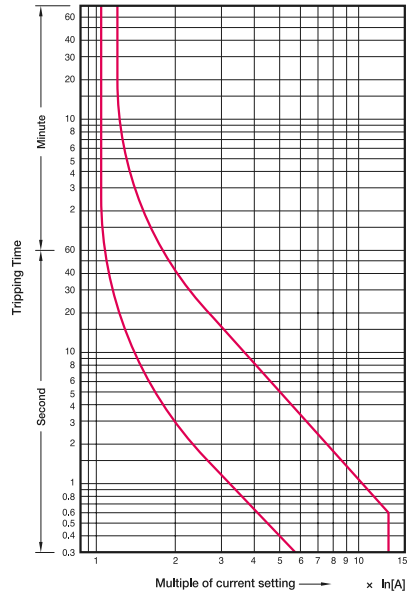


Curve caratteristiche relè
Relay curve characteristics

9-12-18-22-32-40

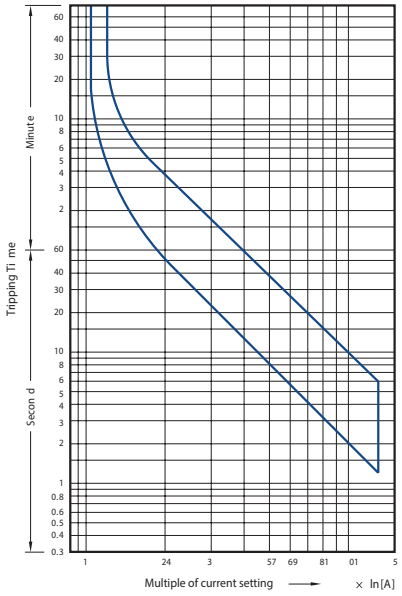


Avviamento a freddo
Cold starting

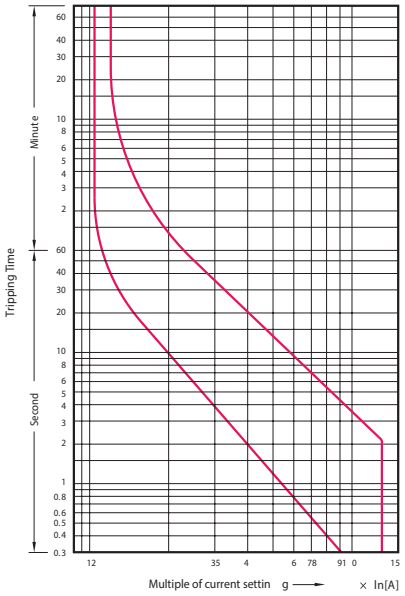


Avviamento a caldo
Hot starting

65

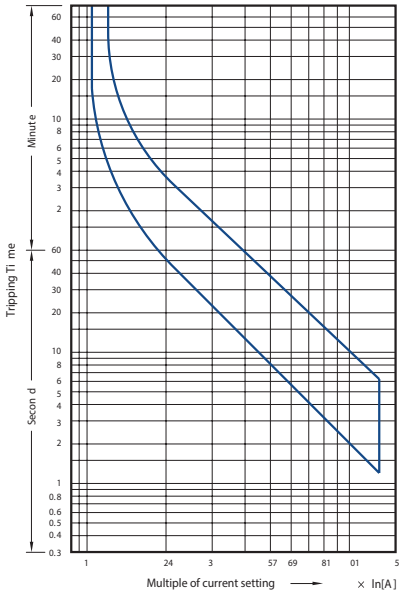


Avviamento a freddo
Cold starting

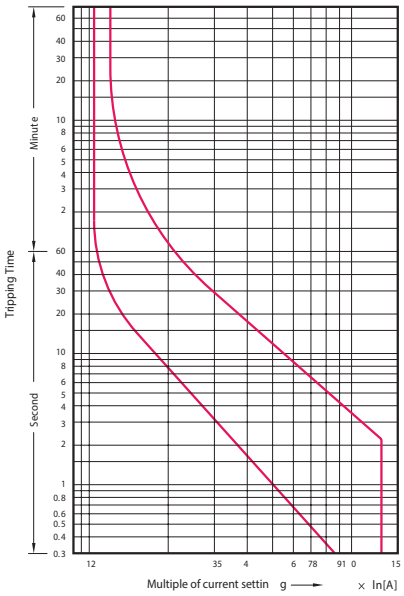


Avviamento a caldo
Hot starting

85-100



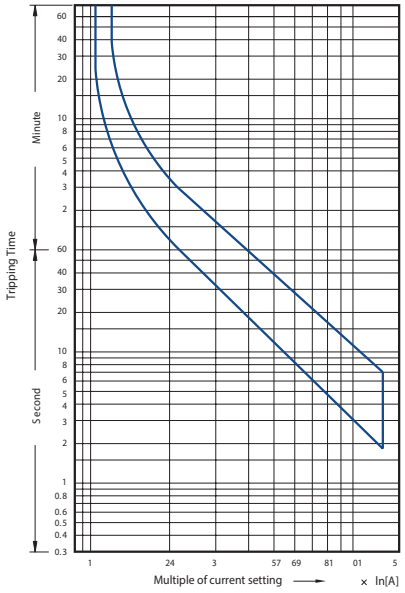
Avviamento a freddo
Cold starting



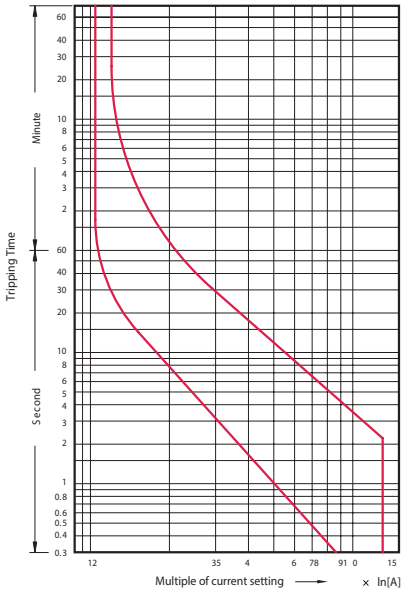
Avviamento a caldo
Hot starting

Curve caratteristiche relè
Relay curve characteristics

150

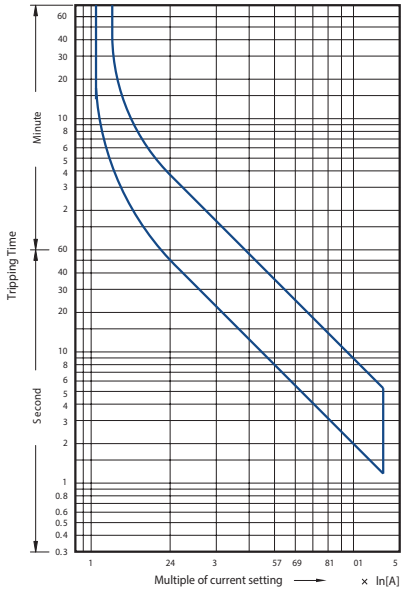


Avviamento a freddo
Cold starting

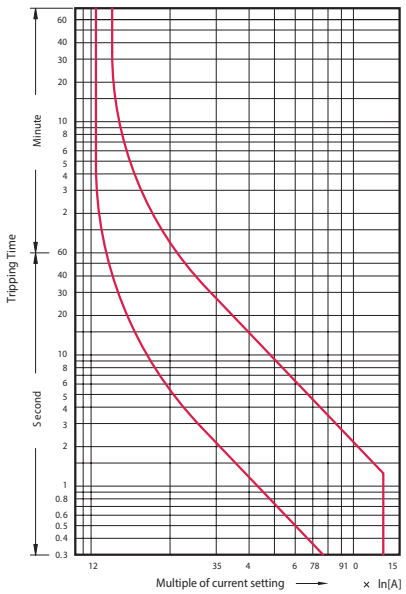


Avviamento a caldo
Hot starting

185-225-330-400

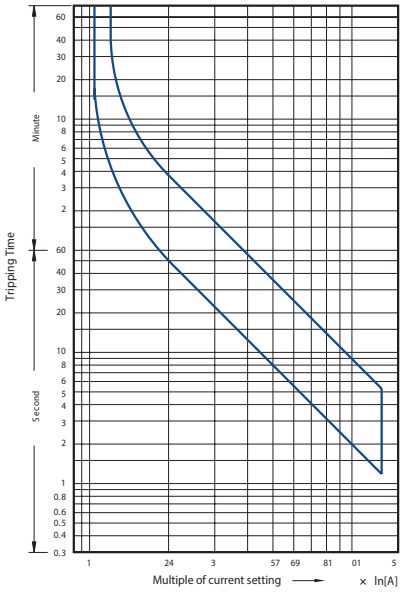


Avviamento a freddo
Cold starting

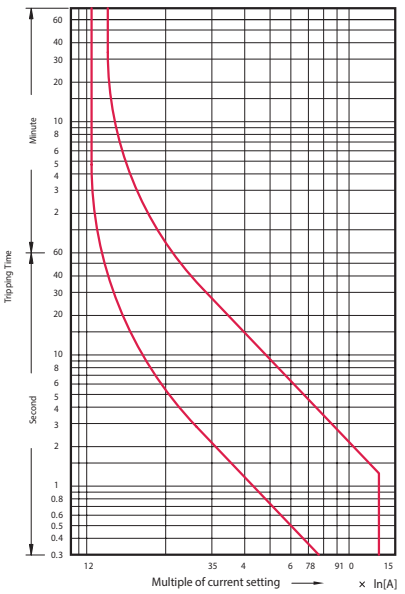


Avviamento a caldo
Hot starting

630-800



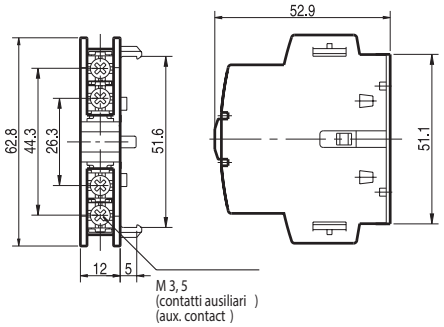
Avviamento a freddo
Cold starting



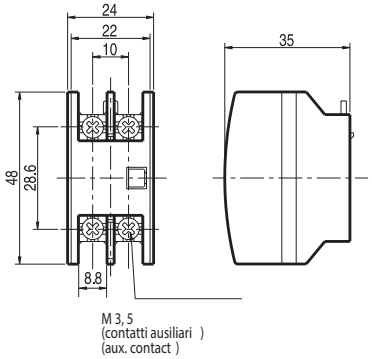
Avviamento a caldo
Hot starting

Contatti ausiliari
Auxiliary contacts

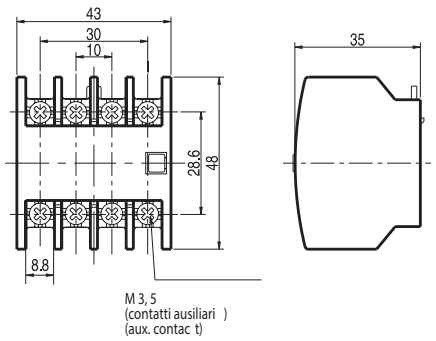
Sezioni / Sections
9-12-18-22-32
40-65-85-100-150



	g	cod
Montaggio laterale / Side mounting		
1NO + 1NC	33	**090UA-1**

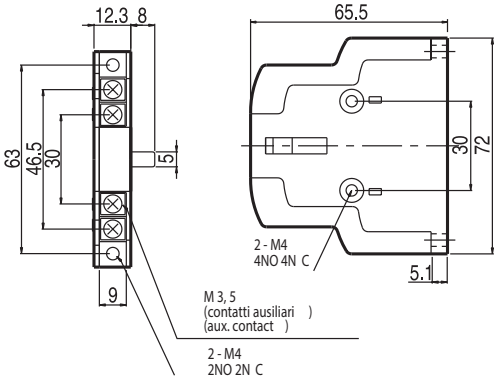


Montaggio frontale / Top mounting		
1NO + 1NC	28	**090AF11**
2NO	28	**090AF20**
2NC	28	**090AF02**



Montaggio frontale / Top mounting		
4NO	50	**090AF40**
3NO + 1NC	50	**090AF31**
2NO + 2NC	50	**090AF22**
1NO + 2NC	50	**090AF13**
4NC	50	**090AF04**

Sezioni / Sections
185-225-330-400-630-800



	g	cod
Montaggio laterale / Side mounting		
1NO + 1NC	45	**090A11**

Caratteristiche ausiliari
Auxiliary characteristics

Assorbimento
Coil consumption [VA]

Limite tensione bobina
Coil operating limit [V]

Tempo di funzionamento
Operating time [ms]

220V (50Hz)	Spunto Pick-up	Ritenuta Sealed	Dissipazione Dissipation [W]	Attrazione Pick-up	Rilascio Drop-out	Corrente bobina Coil current [mA]	Attrazione Pick-up	Rilascio Dropout
9-12-18-22	58	9	2	85÷110% Un	30÷60% Un	41	12÷22	4÷15
32-40	53	12	2	85÷110% Un	30÷60% Un	54	12÷22	4÷15
65	110	13	5	85÷110% Un	30÷60% Un	59	12÷22	4÷15
85-100	230	17	4,4	85÷110% Un	30÷60% Un	77	15÷30	10÷30
150	108	18	4.4	85÷110% Un	30÷60% Un	82	20÷40	60÷70
185-225	380	11.6	4.7	85÷110% Un	30÷60% Un	53	70	70
330-400	571	14	5	85÷110% Un	30÷60% Un	64	55	55
630-800	1000	29	7.8	85÷110% Un	30÷60% Un	132	75	75

Corrente nominale
Nominal current

Vita elettrica [op x 10.000]
Electrical life

	Ith	AC-15				DC-13				N. manovre/ora Operation per hour	Vita meccanica Mechanical life	AC-15	DC-13
	AC-1	120V	240V	480V	600V	125V	250V	440V	600V			220V-440V	24-220V
	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[man/ora]	[mil/cicli]	[mil/cicli]	[mil/cicli]
090UA	10	6	3	1.5	1.2	1.1	0.55	0.31	0.2	1800	20	0.5	0.5
090AF	16	6	3	1.5	1.2	1.1	0.55	0.31	0.2	1800	20	0.5	0.5
090A	16	6	3	1.5	1.2	1.1	0.55	0.31	0.2	1800	20	0.5	0.5
090UR	10	6	3	1.5	1.2	0.55	0.27	-	-	1800	20	0.5	0.5

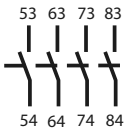
Numerazione contatti ausiliari
Auxiliary contacts

090AF20

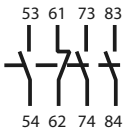
090AF02

090AF11

090AF40



090AF31



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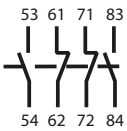
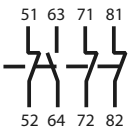


090AF13



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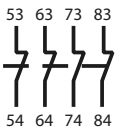
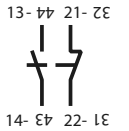
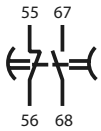


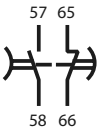
090AL11 / 090A11



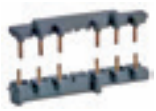
090UT



090UT



Accessori
Accessories



Kit teleinversione / Reversing kit

	g	cod
9 ÷ 22	30	**090UW-22**
32 ÷ 40	30	**090UW-32**
65	30	**090UW-65**
85 ÷ 100	30	**090UW-95**

Filtro soppressore / Surge suppressor RC unit

	g	cod
24 ÷ 48V AC/DC	150	**090US-11**
200 ÷ 240V AC/DC	150	**090US-13**
360 ÷ 440V AC/DC	150	**090US-14**

Interblocco meccanico / Mechanical interlock

	g	cod
Sezioni / Sections: 9-12-18-22-32-40-65-85-100-150		
2NC	30	**090UR-02**

Sezioni / Sections: 185-225-330-400		
	90	**090IM400**

Sezioni / Sections: 630-800		
	90	**090IM800**

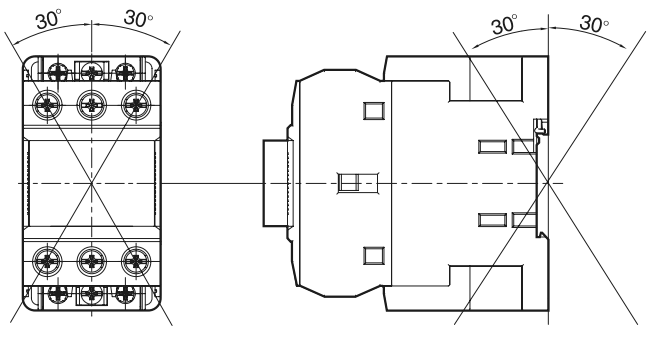
Caratteristiche generali
General characteristics

Caratteristiche generali

Rispondenza alle norme	IEC EN 60947-1, IEC EN 60947-4-1, UL500
Omologazioni	UL, CSA
Limiti di temperatura	Funzionamento ≥ -50°C ÷ +80°C Stoccaggio ≥ -5°C ÷ +60°C
Altitudine d'impiego	3.000 m
Grado di protezione	IP 20 (IEC EN 60529)
Durata meccanica [mil ciclo]	9 ÷22A 15ML/32÷100A 12ML/150÷300 5ML/400÷800 2,5ML
Vita elettrica [mil ciclo]	9 ÷22A 2,5ML/32÷100A 2ML/150÷300 1ML/400÷800 0,5ML
Numero di manovre ora in AC-3 [n° ciclo]	9÷100A 1800 / 160÷800A 1200
Resistenza agli shock	Aperto: 8g Chiuso: 10g (1/2 sinusoide = 11mS)
Resistenza alle vibrazioni	Aperto: 2g Chiuso: 4g 5÷300 (IEC 60-2-6)
Resistenza alla fiamma	VO (UL94) 960° (IEC 695-2-1)
Numero poli	3
Tensione nominale d'isolamento UI contattori	690V
Tensione nominale ad impulso	UIMP 8 KV
Potere di chiusura massimo	10 X Ie in cat. AC-3
Potere di interruzione massimo	8 X Ie in cat. AC-3
Campo di funzionamento della bobina	-15% - +10% Uc (Tensione nominale comando)
Tensione nominale d'isolamento UI relè	690 V
Classe d'intervento relè secondo IEC-947-4-1	10A / 20
Contatti ausiliari relè	1NO + 1NC
Riarmo relè	Manuale o automatico selezionabile

General characteristics

Accordance to standards	IEC EN 60947-1, IEC EN 60947-4-1, UL500
Approvals	UL, CSA
Temperature limits	Funzionamento ≥ -50°C ÷ +80°C Stoccaggio ≥ -5°C ÷ +60°C
Usage altitudes	3.000 m
Protection degree	IP 20 (IEC EN 60529)
Mechanical durability [mil cycles]	9 ÷22A 15ML/32÷100A 12ML/150÷300 5ML/400÷800 2,5ML
Electrical life [mil cycles]	9 ÷22A 2,5ML/32÷100A 2ML/150÷300 1ML/400÷800 0,5ML
N. of operations per hour in AC-3 [n. cycles]	9÷100A 1800 / 160÷800A 1200
Shock resistance	Opened: 8g Closed: 10g (1/2 sine wave = 11mS)
Vibration resistance	Opened: 2g Closed: 4g 5÷300 (IEC 60-2-6)
Flame resistance	VO (UL94) 960° (IEC 695-2-1)
Number of poles	3
Rated insulation voltage UI	690V
Rated impulse with stand voltage	UIMP 8 KV
Maximum making capacity	10 X Ie in cat. AC-3
Maximum breaking capacity	8 X Ie in cat. AC-3
Coil operating limits	-15% - +10% Uc (Rated voltage)
Rated insulation voltage UI relay	690 V
Relay tripping class with IEC-947-4-1	10A / 20
Relay auxiliary contacts	1NO + 1NC
Relay reset type	Manual or automatic reset

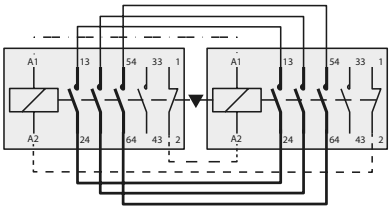


Posizione di funzionamento
Mounting position

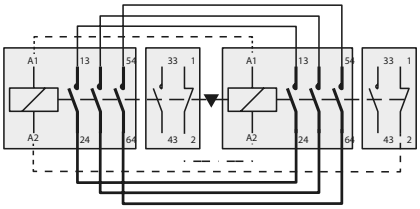
Caratteristiche generali
General characteristics

Schemi di collegamento interblocco meccanico
Mechanical interlock circuit diagram

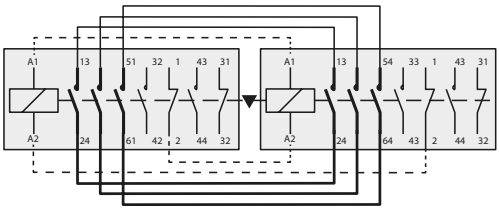
9-12-18-22



32-40-65-100-150

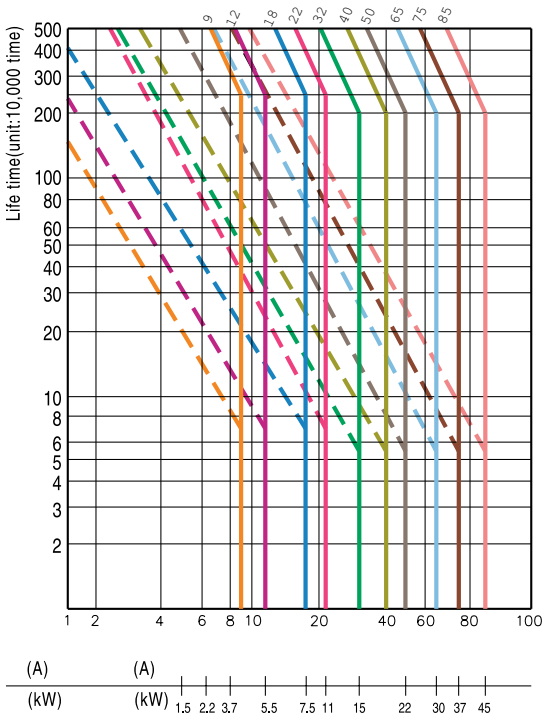


185-225-330-400-630-800

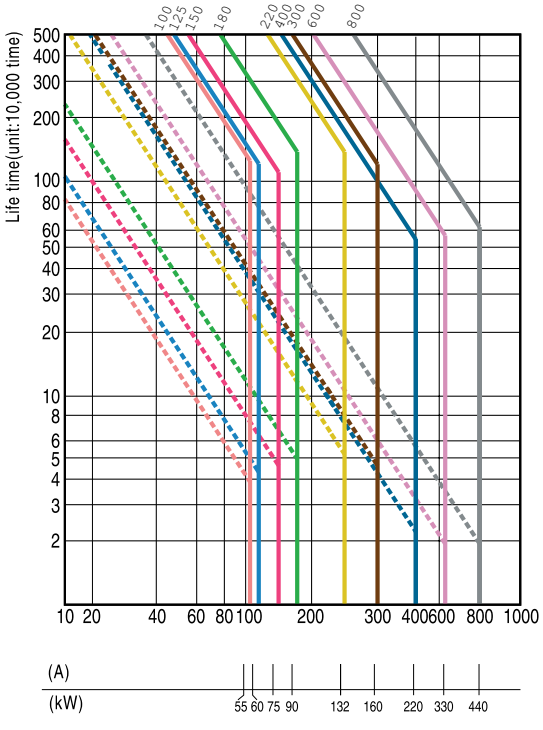


3Ø AC380-440V

AC-3
AC-4

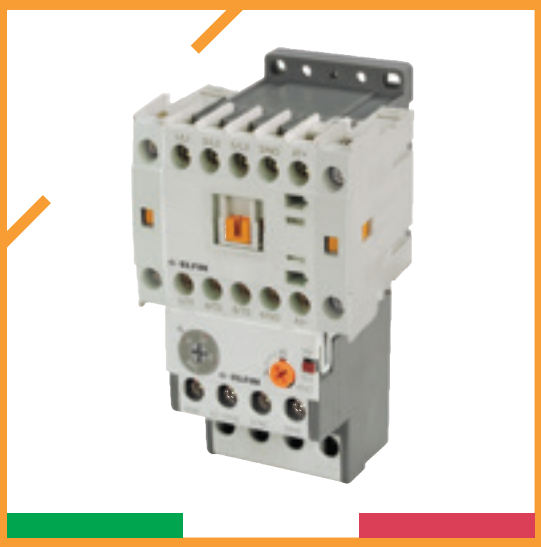


3Ø AC380-440V

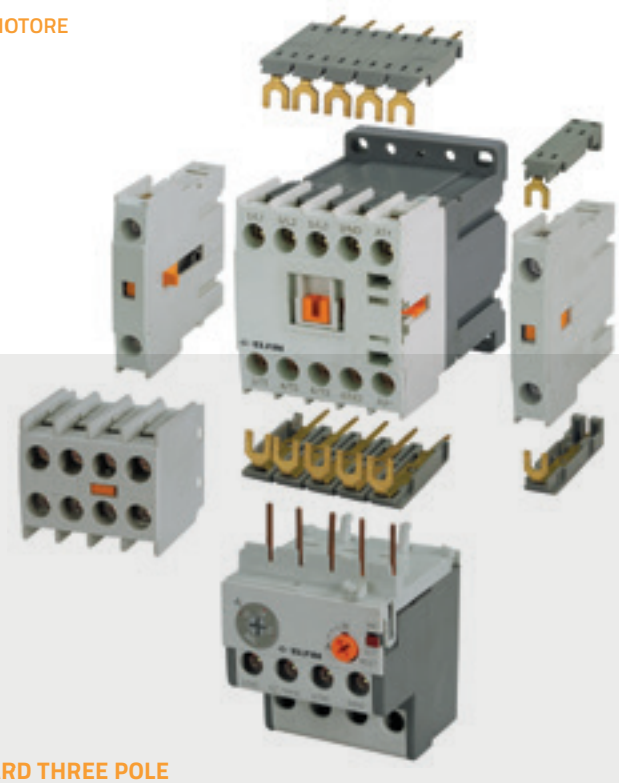


CONTATTORI, RELÈ TERMICI, MINI CONTATTORI, INTERRUTTORI SALVAMOTORE

Minicontattori
Minicontactors



Minicontattori
Minicontactors



TRIPOLARI DI BASE

I minicontattori New Elfin vengono forniti con tre contatti di potenza ed un contatto ausiliario normalmente aperto (NO).

STANDARD THREE POLE

New Elfin minicontactors are supplied as standard with three main pole and an auxiliary contact normally open (NO).

QUATTRO TIPOLOGIE DI CONNESSIONE

I minicontattori sono disponibili con attacchi vite-serrafilo e pin a saldare per circuito stampato. Su richiesta sono disponibili cersioni con attacchi fast-on a cage-clamp.

FOUR TYPE OF CONNECTIONS

Minicontactors are available with various connections screw, solder pins, fast-on and cage damps (on request).

VERSATILITÀ DI IMPIEGO

È possibile trasformare un minicontattore standard in un circuito stampato con apposito kit accessorio. La stessa operazione è possibile anche per il contatto ausiliario laterale. E' inoltre possibile montare sul minicontattore per circuito stampato tutti gli accessori della versione standard (contatti ausiliari laterali e frontali, temporizzatore, interblocco meccanico, filtro RC e relè termico.)

VERSATILITY UTILIZATION

Customer can change a standard minicontactor into a solder pins version with a special kit. The same operation is possible for the side mounting auxiliary contact. Customer can fit on solder pin minicontactor all the accessories of standard version (auxiliary contacts, timer mechanical interlock, RC unit thermal O/L relay).

BOBINE DI ALIMENTAZIONE

Nella nuova gamma di minicontattori New Elfin è possibile gestire le bobine di alimentazione c.a. e c.c. come ricambio.

COILS

In our new range of minicontactors we can supply ac/dc coils as spare parts.

TECNOLOGIA INNOVATIVA

La traslazione dei contatti di potenza è verticale. Questa tecnologia permette di avere una distanza maggiore tra contatti fissi e mobili rispetto ad una soluzione standard orizzontale aumentando potere d'interruzione e vita elettrica.

INNOVATIVE TECNOLOGY

The translation of main contacts is vertical. With this solutions minicontactors have a longer distance between fixed and moving contacts respect to a standard solution with horizontal translation. Making and breaking capacity and electrical life are longer than competitors.

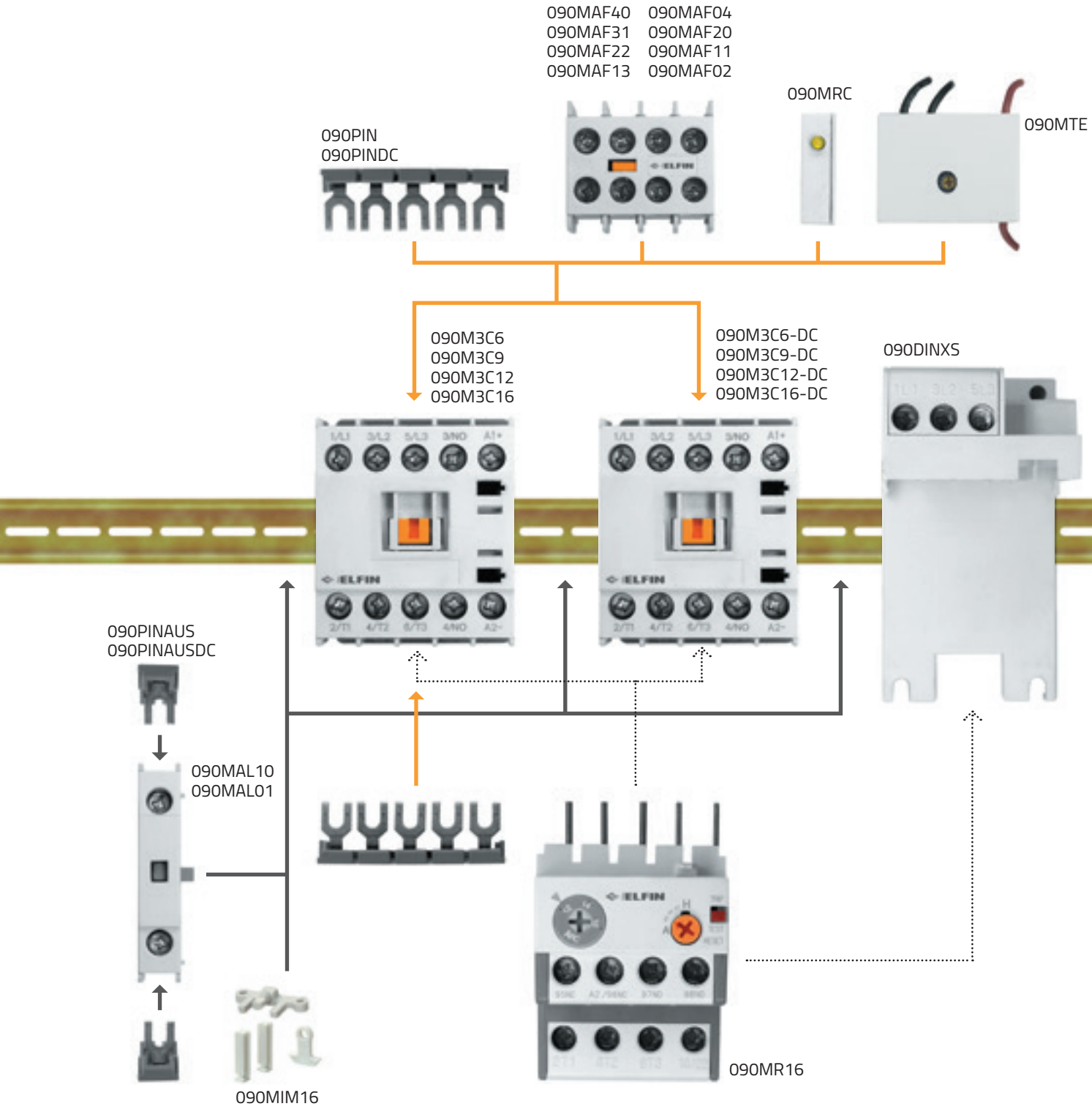
GAMMA ESTESA

La gamma di minicontattori si estende fino a 16A 7.5Kw AC-3.

WIDE RANGE

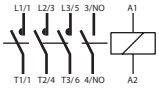
Our range of minicintactors arrive up to 16A 7.5Kw AC-3.

Lay-out serie xsmall
Xsmall series lay-out



Sezioni 6-9-12-16
6-9-12-16 sections

Minicontattore / Minicontactor



Sezione 6A / 6A Section

	g	cod
24V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C6-24**
48V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C6-48**
110V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C6-110**
230/240V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C6-240**
380/400V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C6-400**
12V DC Tensioni di comando / Coil voltage	0,23	**090M3C6-12DC**
24V DC Tensioni di comando / Coil voltage	0,23	**090M3C6-24DC**
48V DC Tensioni di comando / Coil voltage	0,23	**090M3C6-48DC**
110V DC Tensioni di comando / Coil voltage	0,23	**090M3C6-110DC**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			20A
AC3	200~240V	1,5 kW	7A
	380~440V	**2,2 kW**	**6A**
	500~550V	3 kW	5A
	690V	3 kW	4A
DC1 L/R<1ms	24V	1 polo in serie/1 pole in series	9A
		2 poli in serie/2 poles in series	12A
	48V	1 polo in serie/1 pole in series	8A
		2 poli in serie/2 poles in series	10A
	110V	1 polo in serie/1 pole in series	3A
		2 poli in serie/2 poles in series	6A
DC3/DC5 L/R<10ms	24V	1 polo in serie/1 pole in series	6A
		2 poli in serie/2 poles in series	7A
	48V	1 polo in serie/1 pole in series	5A
		2 poli in serie/2 poles in series	7A
	110V	1 polo in serie/1 pole in series	1A
		2 poli in serie/2 poles in series	3A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		20A
Monofase / Mono-phase	115V	0,5 HP
	230V	1 HP
Trifase / Tri-phase	200V	2 HP
	230V	2 HP
	460V	5 HP
	575V	7,5 HP

Sezione 9A / 9A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C9-24**
48V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C9-48**
110V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C9-110**
230/240V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C9-240**
380/400V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C9-400**
12V DC Tensioni di comando / Coil voltage	0,23	**090M3C9-12DC**
24V DC Tensioni di comando / Coil voltage	0,23	**090M3C9-24DC**
48V DC Tensioni di comando / Coil voltage	0,23	**090M3C9-48DC**
110V DC Tensioni di comando / Coil voltage	0,23	**090M3C9-110DC**

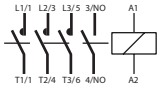
Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			20A
AC3	200~240V	2,2 kW	9A
	380~440V	**4 kW**	**9A**
	500~550V	3,7 kW	6A
	690V	4 kW	5A
DC1 L/R<1ms	24V	1 polo in serie/1 pole in series	10A
		2 poli in serie/2 poles in series	13A
	48V	1 polo in serie/1 pole in series	10A
		2 poli in serie/2 poles in series	12A
	110V	1 polo in serie/1 pole in series	3A
		2 poli in serie/2 poles in series	7A
DC3/DC5 L/R<10ms	24V	1 polo in serie/1 pole in series	7A
		2 poli in serie/2 poles in series	9A
	48V	1 polo in serie/1 pole in series	6A
		2 poli in serie/2 poles in series	8A
	110V	1 polo in serie/1 pole in series	1A
		2 poli in serie/2 poles in series	4A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		25A
Monofase / Mono-phase	115V	0,5 HP
	230V	1 HP
Trifase / Tri-phase	200V	3 HP
	230V	3 HP
	460V	7,5 HP
	575V	10 HP

Sezioni 6-9-12-16
6-9-12-16 sections



Minicontattore / Minicontactor

g cod

Sezione 12A / 12A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C12-24**
48V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C12-48**
110V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C12-110**
230/240V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C12-240**
380/400V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C12-400**
12V DC Tensioni di comando / Coil voltage	0,23	**090M3C12-12DC**
24V DC Tensioni di comando / Coil voltage	0,23	**090M3C12-24DC**
48V DC Tensioni di comando / Coil voltage	0,23	**090M3C12-48DC**
110V DC Tensioni di comando / Coil voltage	0,23	**090M3C12-110DC**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

AC1			20A
AC3	200~240V	3 kW	12A
	380~440V	**5,5 kW**	**12A**
	500~550V	4 kW	7A
	690V	4 kW	5A
DC1 L/R<1ms	24V	1 polo in serie/1 pole in series	12A
		2 poli in serie/2 poles in series	15A
	48V	1 polo in serie/1 pole in series	11A
		2 poli in serie/2 poles in series	14A
	110V	1 polo in serie/1 pole in series	4A
		2 poli in serie/2 poles in series	8A
DC3/DC5 L/R<10ms	24V	1 polo in serie/1 pole in series	9A
		2 poli in serie/2 poles in series	12A
	48V	1 polo in serie/1 pole in series	8A
		2 poli in serie/2 poles in series	10A
	110V	1 polo in serie/1 pole in series	1A
		2 poli in serie/2 poles in series	5A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		30A
Monofase / Mono-phase	115V	1 HP
	230V	3 HP
Trifase / Tri-phase	200V	5 HP
	230V	5 HP
	460V	10 HP
	575V	15 HP

Sezione 16A / 16A Section

24V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C16-24**
48V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C16-48**
110V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C16-110**
230/240V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C16-240**
380/400V - 50/60 Hz Tensioni di comando / Coil voltage	0,17	**090M3C16-400**
12V DC Tensioni di comando / Coil voltage	0,23	**090M3C16-12DC**
24V DC Tensioni di comando / Coil voltage	0,23	**090M3C16-24DC**
48V DC Tensioni di comando / Coil voltage	0,23	**090M3C16-48DC**
110V DC Tensioni di comando / Coil voltage	0,23	**090M3C16-110DC**

Prestazioni secondo IEC-60947
Perfomance in accordance with IEC-60947

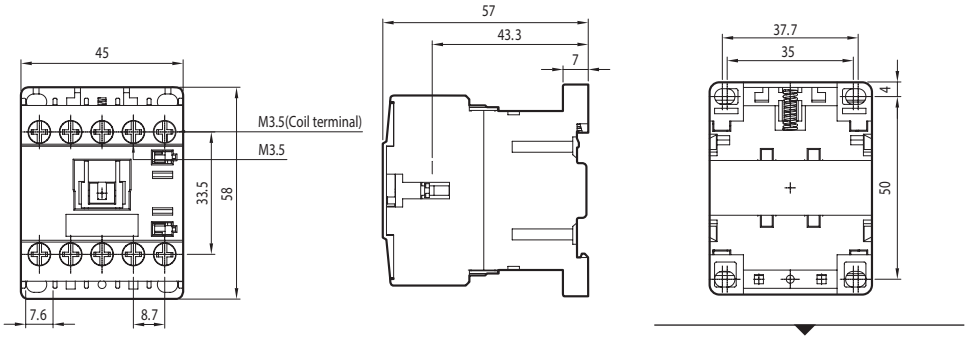
AC1			20A
AC3	200~240V	2,2 kW	16A
	380~440V	**4 kW**	**16A**
	500~550V	3,7 kW	9A
	690V	4 kW	5A
DC1 L/R<1ms	24V	1 polo in serie/1 pole in series	16A
		2 poli in serie/2 poles in series	20A
	48V	1 polo in serie/1 pole in series	14A
		2 poli in serie/2 poles in series	17A
	110V	1 polo in serie/1 pole in series	5A
		2 poli in serie/2 poles in series	9A
DC3/DC5 L/R<10ms	24V	1 polo in serie/1 pole in series	12A
		2 poli in serie/2 poles in series	15A
	48V	1 polo in serie/1 pole in series	10A
		2 poli in serie/2 poles in series	13A
	110V	1 polo in serie/1 pole in series	2A
		2 poli in serie/2 poles in series	6A

Prestazioni secondo UL/CSA
Perfomance in accordance with UL/CSA
Potenza nominale massima / Maximum nominal power

Ith		32A
Monofase / Mono-phase	115V	2 HP
	230V	3 HP
Trifase / Tri-phase	200V	7 HP
	230V	7,5 HP
	460V	10 HP
	575V	15 HP

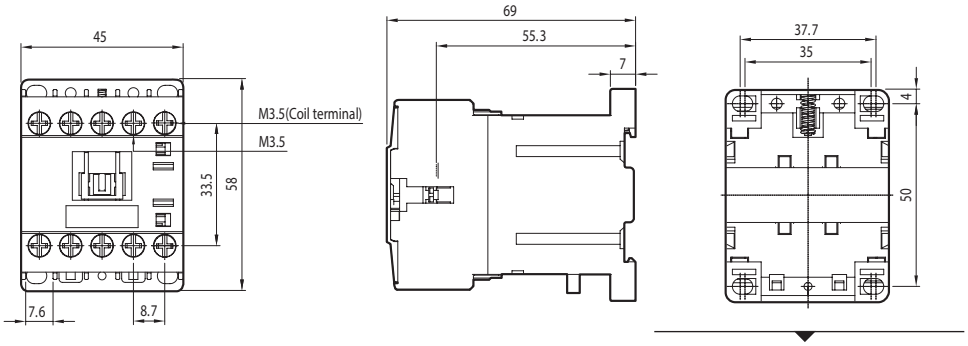
Sezioni 6-9-12-16
6-9-12-16 sections

Minicontattore C.A. / A.C. minicontactors



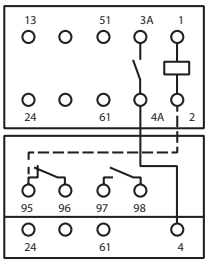
Dime montaggio
Fixing dimension

Minicontattore C.C. / D.C. minicontactors



Dime montaggio
Fixing dimension

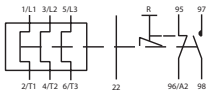
Sezioni 6-9-12-16
6-9-12-16 sections



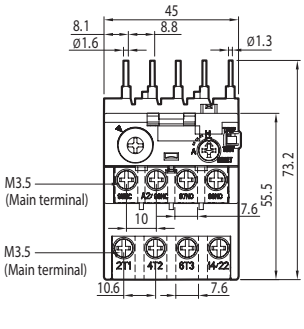
Schema per cablaggio diretto contattore-relè
Direct mounting of T.O.R. to minicontactor diagram of prewiring

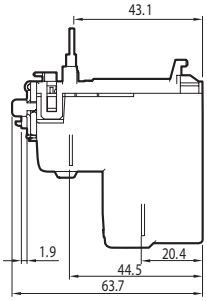
Relè termico differenziale / Thermal O/L relay

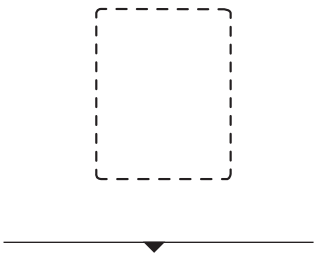
	g	cod
0,1 ÷ 0,16 Taratura (A) / Setting range (A)	0,1	**09MR16-016**
0,16 ÷ 0,25 Taratura (A) / Setting range (A)	0,1	**09MR16-025**
0,25 ÷ 0,4 Taratura (A) / Setting range (A)	0,1	**09MR16-04**
0,4 ÷ 0,65 Taratura (A) / Setting range (A)	0,1	**09MR16-065**
0,63 ÷ 1 Taratura (A) / Setting range (A)	0,1	**09MR16-1**
1 ÷ 1,6 Taratura (A) / Setting range (A)	0,1	**09MR16-1V6**
1,6 ÷ 2,5 Taratura (A) / Setting range (A)	0,1	**09MR16-2V5**
2,5 ÷ 4 Taratura (A) / Setting range (A)	0,1	**09MR16-4**
4 ÷ 6 Taratura (A) / Setting range (A)	0,1	**09MR16-6**
5 ÷ 8 Taratura (A) / Setting range (A)	0,1	**09MR16-8**
6 ÷ 9 Taratura (A) / Setting range (A)	0,1	**09MR16-9**
7 ÷ 10 Taratura (A) / Setting range (A)	0,1	**09MR16-010**
9 ÷ 13 Taratura (A) / Setting range (A)	0,1	**09MR16-013**
12 ÷ 16 Taratura (A) / Setting range (A)	0,1	**09MR16-16**



Minirelè / T.O.R.

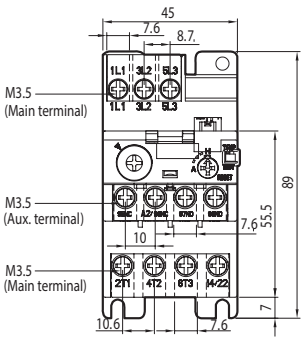


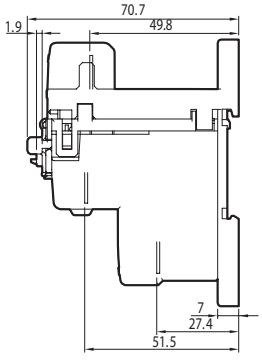


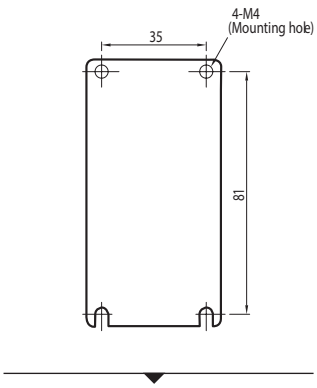


Dime montaggio
Fixing dimension

Minirelè montaggio su accessorio separato
T.O.R. with separate mounting adaptor



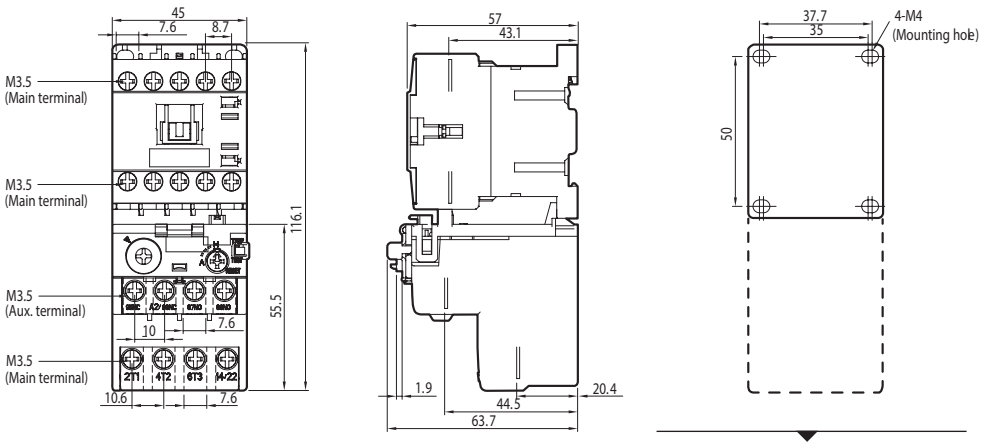




Dime montaggio
Fixing dimension

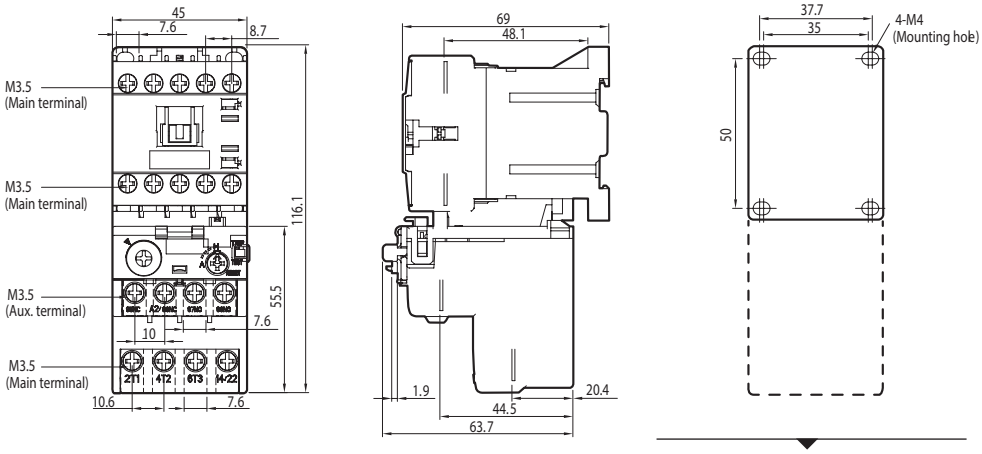
Sezioni 6-9-12-16
6-9-12-16 sections

Minirelè montaggio diretto su minicontattore C.A.
T.O.R. direct mounting on A.C. minicontactor



Dime montaggio
Fixing dimension

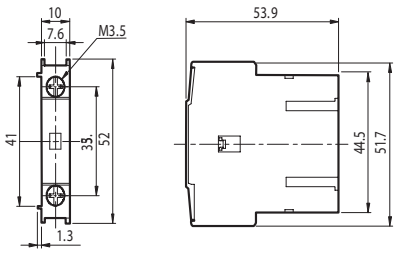
Minirelè montaggio diretto su minicontattore C.C.
T.O.R. direct mounting on D.C. minicontactor



Dime montaggio
Fixing dimension

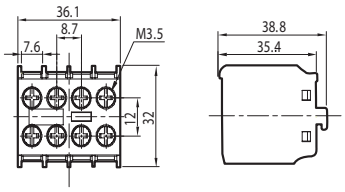
Contatti ausiliari
Auxiliary contacts

Contatti ausiliari
Auxiliary contacts



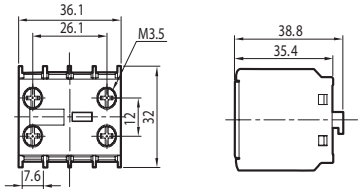
Montaggio laterale / Side mounting

	g	cod
1NO	20	**090MAL10**
1NC	20	**090MAL01**



Montaggio frontale / Top mounting

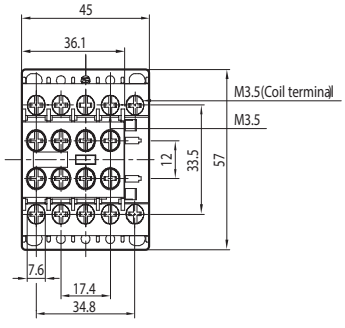
	g	cod
4NO	40	**090MAF40**
3NO + 1NC	40	**090MAF31**
2NO + 2NC	40	**090MAF22**
1NO + 3NC	40	**090MAF13**
4NC	40	**090MAF04**

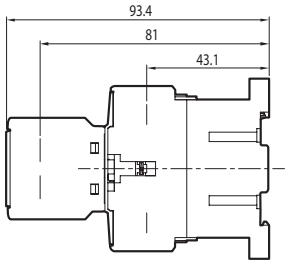


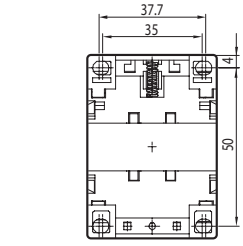
Montaggio frontale / Top mounting

	g	cod
2NO	30	**090MAF20**
1NO + 1NC	30	**090MAF11**
2NC	30	**090MAF02**

Minicontattore con ausiliario frontale
Minicontactor with top mounting contact

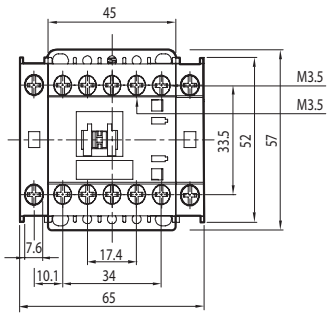


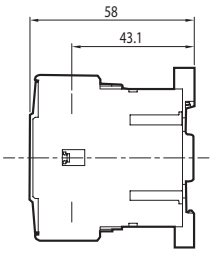


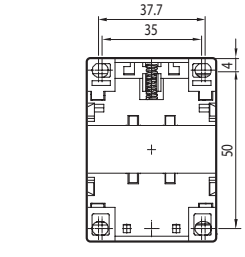


Dime montaggio
Fixing dimension

Minicontattore con ausiliario frontale
Minicontactor with top mounting contact

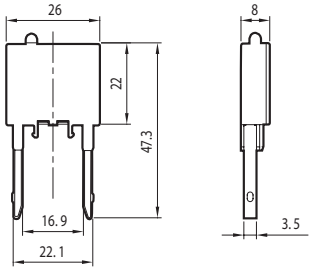






Dime montaggio
Fixing dimension

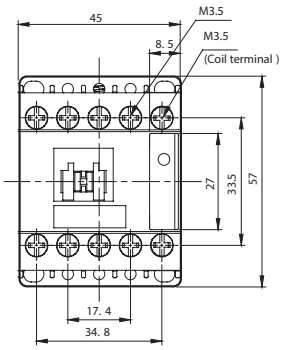
Accessori
Accessories

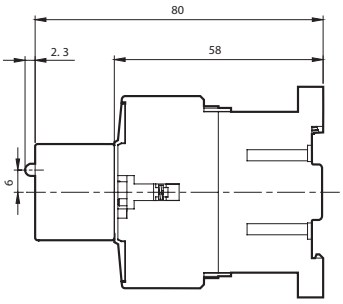


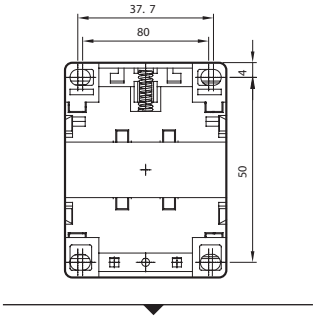
Filtro soppressore
Surge soppressor unit

	g	cod
24-48V CA	0,005	**090MRC48**
60-127V CA	0,005	**090MRC110**
200-240V CA	0,005	**090MRC240**
17-24V CC	0,005	**090MRC24DC**
36-72V CC	0,005	**090MRC72DC**

Minicontattore con filtro RC
Minicontactor with surge suppressor unit







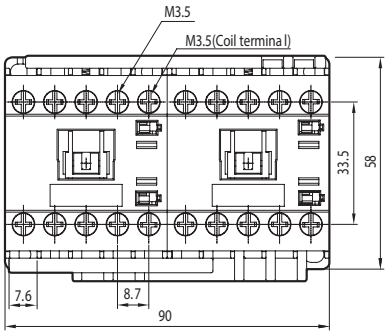
Dime montaggio
Fixing dimension

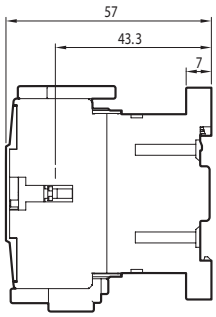
Accessori
Accessories

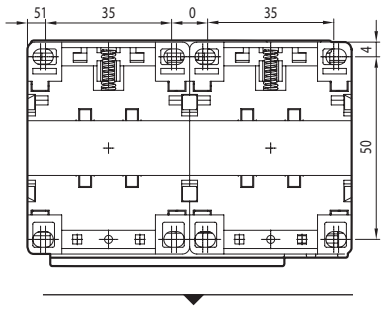
Interblocco meccanico
Mechanical interlock

	g	cod
Interblocco meccanico Mechanical interlock	0,005	**090MIM16**

Minicontattori C.A. interbloccati
A.C. minicontactors interlocked

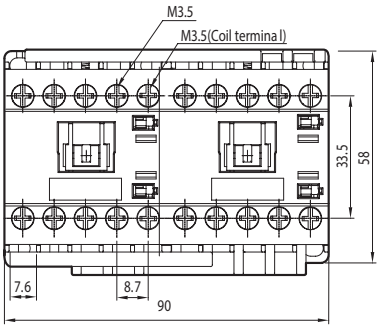


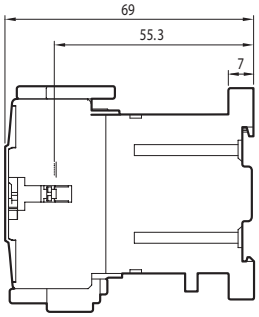


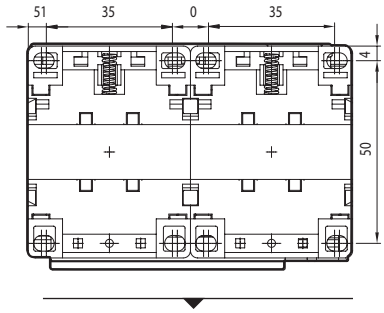


Dime montaggio
Fixing dimension

Minicontattori C.C. interbloccati
D.C. minicontactors interlocked



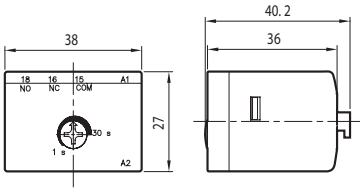




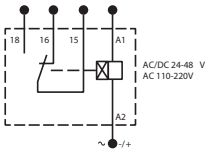
Dime montaggio
Fixing dimension

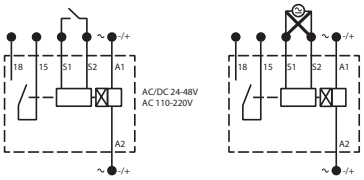
Accessori
Accessories

Unità elettronica temporizzata
Electric timer unit

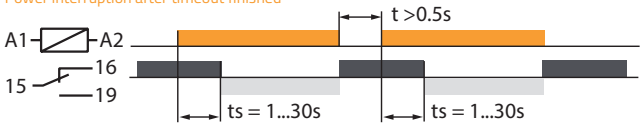


	g	cod
24-48V CA/CC delay ON 1-30 s	40	**090MTEON48**
100-220V CA/CC delay ON 1-30 s	40	**090MTEON220**
24-48V CA/CC delay OFF 1-30 s	40	**090MTEOFF48**
100-220V CA/CC delay OFF 1-30 s	40	**090MTEOFF220**

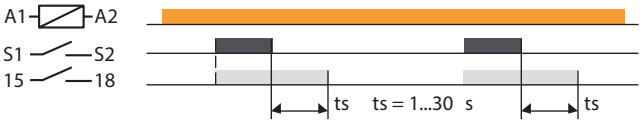




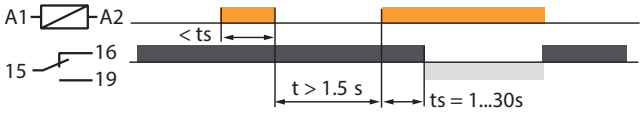
Interruzione alimentazione dopo il termine del tempo ts
Power interruption after timeout finished



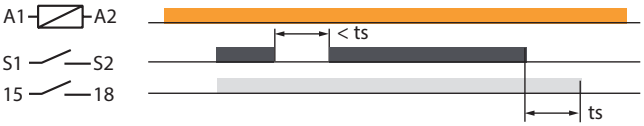
Interruzione alimentazione dopo il termine del tempo ts
Power interruption after timeout finished



Interruzione alimentazione prima del termine del tempo ts
Power interruption before timeout finished



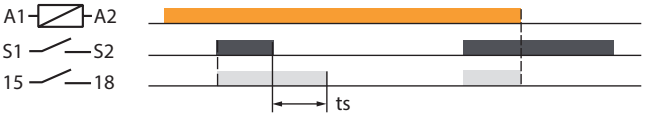
Apertura S1-S2 prima del termine del tempo ts
Turn on switch (S1-S2) before timeout finished



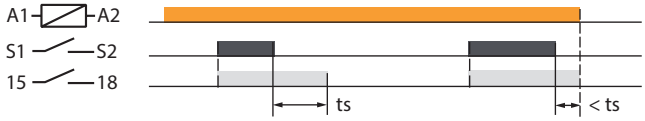
Senza tensione / De-energized

Sotto tensione / Energized

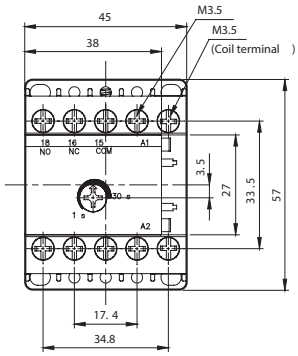
Interruzione alimentazione durante funzionamento timer
Power interruption operating timer

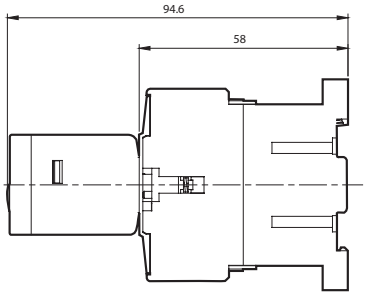


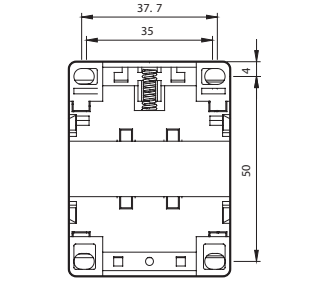
Interruzione alimentazione prima del termine del tempo ts
Power interruption on delaying



Minicontattore con temporizzatore elettronico
Minicontactor with electrictronic timer





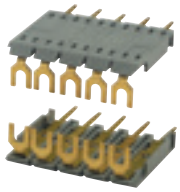


Dime montaggio
Fixing dimension

Accessori e ricambi
Accessories and spare parts

Sistema di montaggio separato
Separate mounting system

	g	cod
Adattatore montaggio barra DIN 35 Bar mounting adapter DIN 35	0,3	**090DINXS**



Pettini / Solder pin terminal

Per contattori/ For contactors

	g	cod
Pettini corti A.C. / A.C. short	20	**090PIN**
Pettini lunghi D.C. / D.C. long	20	**090PINDC**

Per contatti ausiliari / For auxiliary contacts

Pettini corti A.C. / A.C. short	10	**090PINAUS**
Pettini lunghi D.C. / D.C. long	10	**090PINAUSDC**

Bobine / Coils

	g	cod
24V - 50/60 Hz Tensioni di comando / Coil voltage	0,07	**090B16-24**
48V - 50/60 Hz Tensioni di comando / Coil voltage	0,07	**090B16-48**
110V - 50/60 Hz Tensioni di comando / Coil voltage	0,07	**090B16-110**
230/240V - 50/60 Hz Tensioni di comando / Coil voltage	0,07	**090B16-220**
380/400V - 50/60 Hz Tensioni di comando / Coil voltage	0,07	**090B16-380**
12V CC Basso assorbimento / Low consumption	0,08	**090B16-12DCL**
24V CC Basso assorbimento / Low consumption	0,08	**090B16-24DCL**
48V CC Basso assorbimento / Low consumption	0,08	**090B16-48DCL**
110V CC Basso assorbimento / Low consumption	0,08	**090B16-110DCL**

Caratteristiche ausiliari
Auxiliary characteristics

	Assorbimento Coil consumption [VA]		Limite tensione bobina Coil operating limit [V]			Tempo di funzionamento Operating time [ms]	
60Hz (50Hz)	Spunto Pick-up	Ritenuta Sealed	Dissipazione Dissipation [W]	Attrazione Pick-up	Rilascio Drop-out	Attrazione Pick-up	Rilascio Dropout
6-9-12-16	32	6	2	80÷110%	30÷40%	10÷20	4÷15
6-9-12-16	1.2	1.2	1.2	80÷125%	10÷30%	40÷50	35÷45

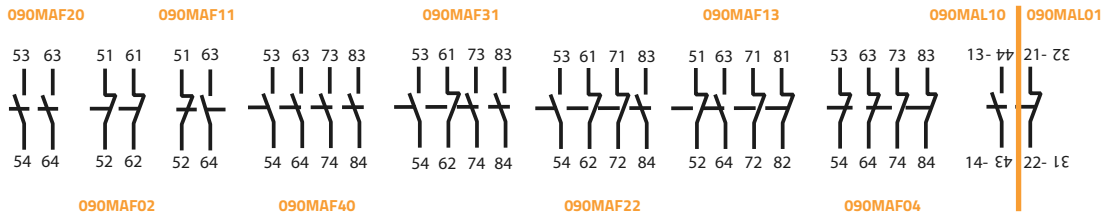
Caratteristiche elettriche ausiliari relè
Auxiliary contact relais electrical characterstics

	Ith	AC11/AC-15			DC11/DC13	
	AC1	110V	220V	550V	110V	220V
	[A]	[A]	[A]	[A]	[A]	[A]
090R16	16	0.3/2.5	0.3/2	0.3/1	0.28	0.14

Caratteristiche elettriche ausiliari
Auxiliary contact electrical characterstics

	CORRENTE NOMINALE / NOMINAL CURRENT									N. manovre/ora	Vita meccanica	Vita elettrica [op x 10.000]
	Ith	AC-15				DC-13				Operation per hour	Mechanical life	Electrical life
	AC-1	120V	240V	480V	600V	125V	250V	440V	600V			
	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[A]			
090MAF...	16	6	3	1.5	1.2	1.1	0.55	0.31	0.2	1800	1200	100
090MAL...	16	6	3	1.5	1.2	1.1	0.55	0.31	0.2	1800	1200	100

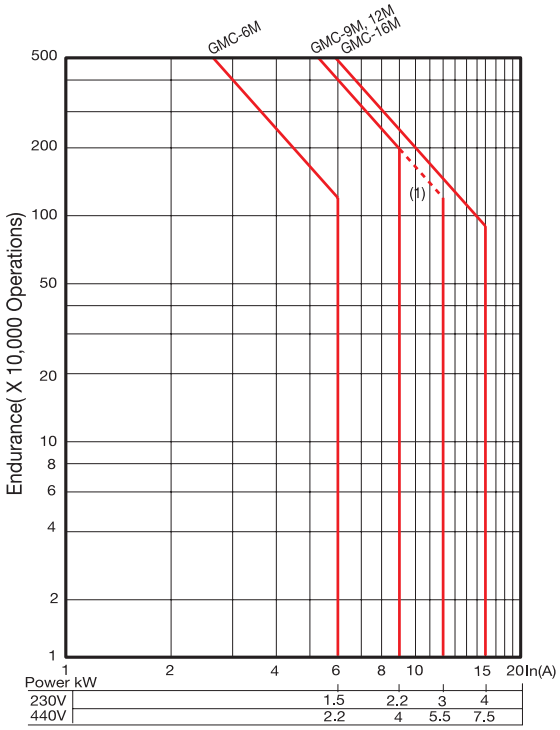
Numerazione contatti ausiliari
Auxiliary contacts



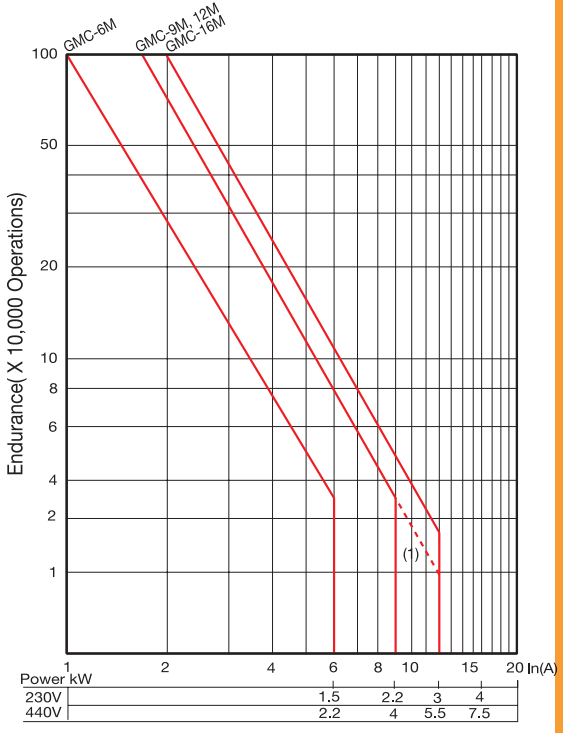
Caratteristiche generali
General characteristics

Vita elettrica / Electrical life time

AC-3 UE 380-440V

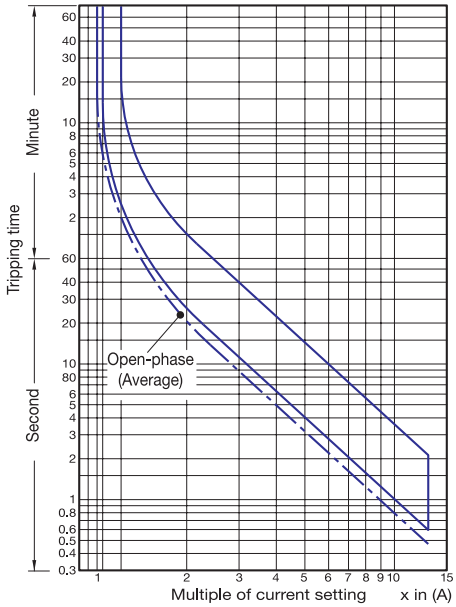


AC-4 UE 380-440V

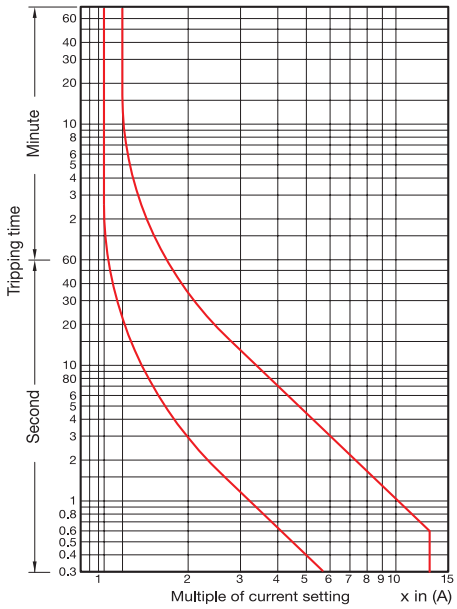


Curve caratteristiche relè / Relay curve characteristics

Avviamento a freddo / Cold start



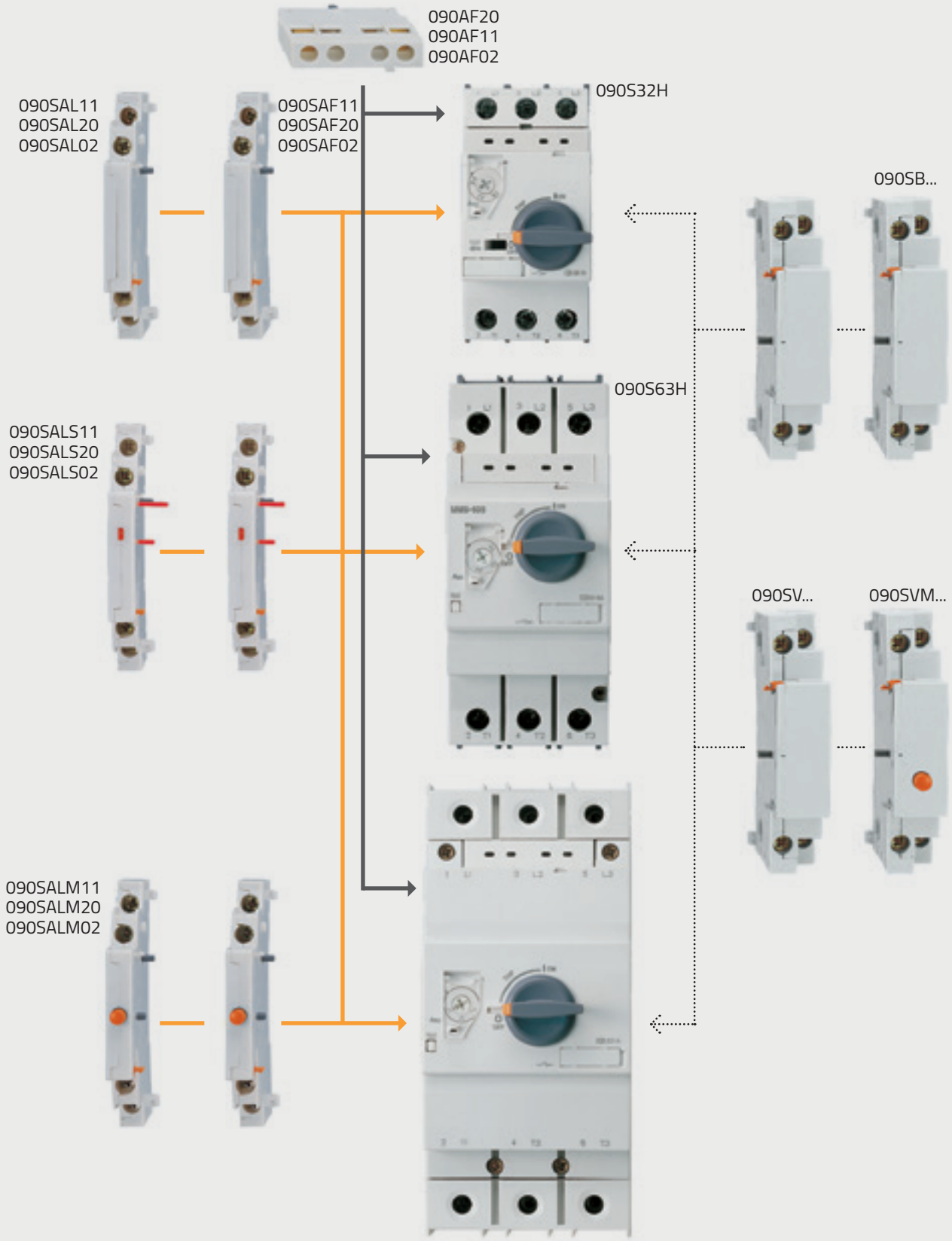
Avviamento a caldo / Warm start



CONTATTORI, RELÈ TERMICI, MINI CONTATTORI, INTERRUTTORI SALVAMOTORE

Interruttori automatici
Manual motor starters

Lay-out interruttori automatici
Manual motor starters lay-out



Caratteristiche generali
General characteristics

CARATTERISTICHE GENERALI

- Intervento termico regolabile
- Intervento magnetico 13X IE max
- Classe d'intervento 10
- Compensazione temperatura ambiente
- Funzioni di protezione:
  - mancanza fase
  - corto circuito
  - sovraccarico

GENERAL CHARACTERISTICS

- Adjustable thermal release
- Magnetic release 13X IE max
- Trip class 10
- Ambient temperature compensation
- Protective functions:
  - phase failure
  - short circuit
  - over load

Caratteristiche generali

CE

Numero di poli	3
Tensione nominale (UE)	fino a 690V
Frequenza nominale	50/60 Hz
Tensione nominale di isolamento	Ui 690V / Uimp. 6KV
Categoria d'impiego	IEC 60947-2 (interruttore): CAT.A IEC 60947-4 (avviatore): AC3
Durata meccanica	S32H 100.000 oper. S63H - S100H 50.000 oper.
Durata elettrica	S32H 100.000 oper. S63H - S100H 25.000 oper.
Numero di manovre ora	25 oper. / hour
Compensazione temperatura	-20 ÷ +60 °C
Sgancio istantaneo per corto circuito	13 x Ie

General characteristics

CE

Number of poles	3
Rated voltage (UE)	up to 690V
Rated frequency	50/60 Hz
Rated insulation voltage	Ui 690V / Uimp. 6KV
Utilization category	IEC 60947-2 (breaker): CAT.A IEC 60947-4 (motor starter): AC3
Mechanical endurance	S32H 100.000 oper. S63H - S100H 50.000 oper.
Electrical endurance	S32H 100.000 oper. S63H - S100H 25.000 oper.
Max operating frequency	25 oper. / hour
Temperature compensation	-20 ÷ +60 °C
Instantaneous short circuit release	13 x Ie

Caratteristiche generali
General characteristics

Type	Rated operational current range [A]	Thermal release adjustment range [A]	Magnetic release operating current [A]	Switching of 3 phase AC motors, AC-2, AC-3						400/415V	
				3-phase [kW] (50/60Hz)			3-phase[HP](60Hz)				
				230V	400V	690V	230V	460V	575V	Icu [kA]	Ics [kA]
SEZIONE 32 / 32 SECTION	0.16	0.1...0.16	2.1	-	0.02	-	-	-	-	100	100
	0.25	0.16...0.25	3.3	0.03	0.06	-	-	-	-	100	100
	0.4	0.25...0.4	5.2	0.06	0.09	-	-	-	-	100	100
	0.63	0.4...0.63	8.2	0.09	0.12	0.25	-	-	-	100	100
	1	0.63...1.0	13	0.12	0.25	0.55	-	1/2	1/2	100	100
	1.6	1.0...1.6	20.8	0.25	0.55	1.1	1/3	3/4	1	100	100
	2.5	1.6...2.5	32.5	0.37	0.75	1.5	1/2	1½	1½	100	100
	4	2.5...4.0	52	0.75	1.5	3	1	2	3	100	100
	6	4...6	78	1.5	2.2	4	1½	5	5	100	100
	8	5...8	104	1.5	3	5.5	2	5	5	100	100
	10	6...10	130	3	4	7.5	3	7½	10	100	100
	13	9...13	169	3	5.5	11	3	7½	10	100	100
	17	11...17	221	4	7.5	11	5	10	15	50	38
	22	14...22	286	4	7.5	15	7½	15	20	50	38
	26	18...26	338	5.5	11	18.5	7½	15	20	50	38
	32	22...32	416	7.5	15	22	10	20	30	50	38
	40	28~40	520	7.5	18.5	30	15	30	40	40	30
SEZIONE 63 / 63 SECTION	10	6~10	130	3	4	7.5	3	7½	10	100	100
	13	9~13	169	3	5.5	11	3	7½	10	100	100
	17	11~17	221	4	7.5	11	5	10	15	50	50
	22	14~22	286	4	7.5	15	7½	15	20	50	50
	26	18~26	338	5.5	11	18.5	10	20	25	50	50
	32	22~32	416	7.5	15	22	10	25	30	50	50
	40	28~40	520	7.5	18.5	30	15	30	40	50	50
	50	34~50	650	11	22	45	15	40	50	50	50
	63	45~63	819	15	30	55	20	50	60	50	50
	65	47~65	845	15	30	55	20	50	60	35	27
SEZIONE 100 / 100 SECTION	17	11~17	221	4	7.5	11	5	10	15	100	100
	22	14~22	286	4	7.5	15	7½	15	20	100	50
	26	18~26	338	5.5	11	18.5	10	20	25	100	50
	32	22~32	416	7.5	15	22	10	25	30	100	50
	40	28~40	520	7.5	18.5	30	15	30	40	100	50
	50	34~50	650	11	22	45	15	40	50	100	50
	63	45~63	819	15	30	55	20	50	60	100	50
	75	55~75	975	22	37	63	25	60	75	75	50
	90	70~90	1170	30	45	75	30	75	100	75	50
	100	80~100	1300	30	45	90	40	75	100	75	50

Sezioni 32-63-100
32-63-100 sections

Interruttori automatici salvamotore
Manual motor starters

Sezione 32A / 32A Section

	g	cod
0,1-0,16 Taratura / Setting range [A] 100 KA	0,36	**090S32H-016**
0,16-0,25 Taratura / Setting range [A] 100 KA	0,36	**090S32H-025**
0,25-0,4 Taratura / Setting range [A] 100 KA	0,36	**090S32H-04**
0,4-0,63 Taratura / Setting range [A] 100 KA	0,36	**090S32H-063**
0,63-1 Taratura / Setting range [A] 100 KA	0,36	**090S32H-01**
1-1.6 Taratura / Setting range [A] 100 KA	0,36	**090S32H-1V6**
1,6-2,5 Taratura / Setting range [A] 100 KA	0,36	**090S32H-2V5**
2,5-4 Taratura / Setting range [A] 100 KA	0,36	**090S32H-4**
4-6 Taratura / Setting range [A] 100 KA	0,36	**090S32H-6**
5-8 Taratura / Setting range [A] 100 KA	0,36	**090S32H-8**
6-10 Taratura / Setting range [A] 100 KA	0,36	**090S32H-10**
9-13 Taratura / Setting range [A] 100 KA	0,36	**090S32H-13**
11-17 Taratura / Setting range [A] 100 KA	0,36	**090S32H-17**
14-22 Taratura / Setting range [A] 50 KA	0,36	**090S32H-22**
18-26 Taratura / Setting range [A] 50 KA	0,36	**090S32H-26**
22-32 Taratura / Setting range [A] 50 KA	0,36	**090S32H-32**

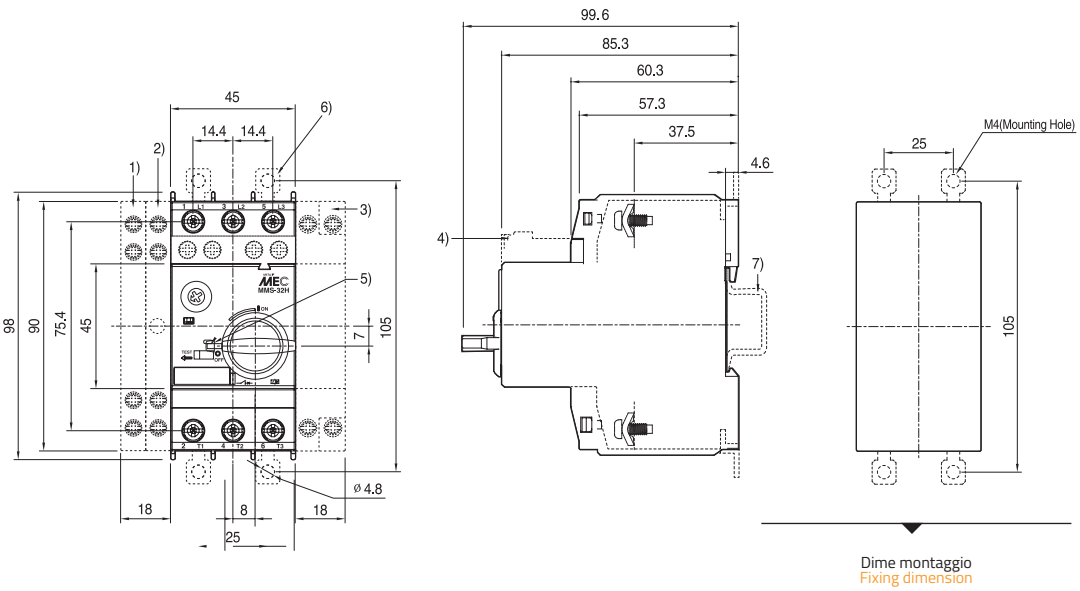
Sezione 63A / 63A Section

28-40 Taratura / Setting range [A] 50 KA	1,00	**090S63H-40**
34-50 Taratura / Setting range [A] 50 KA	1,00	**090S63H-50**
45-63 Taratura / Setting range [A] 50 KA	1,00	**090S63H-63**

Sezione 100A / 100A Section

55-75 Taratura / Setting range [A] 100 KA	2,20	**090S100H-75**
70-90 Taratura / Setting range [A] 100 KA	2,20	**090S100H-90**
80-100 Taratura / Setting range [A] 100 KA	2,20	**090S100H-100**

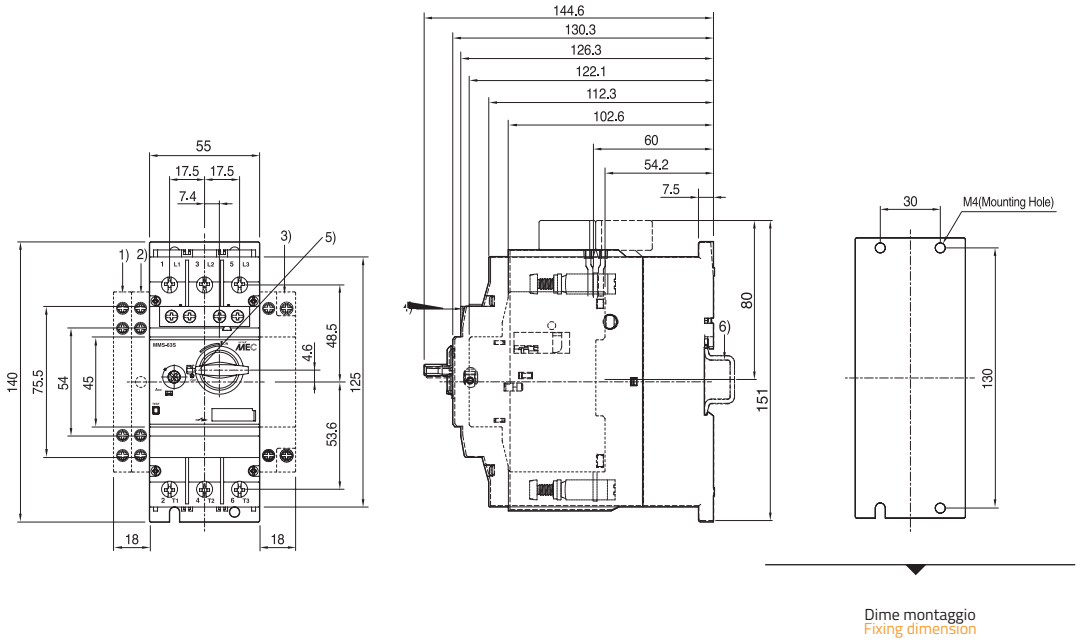
32H



Dime montaggio
Fixing dimension

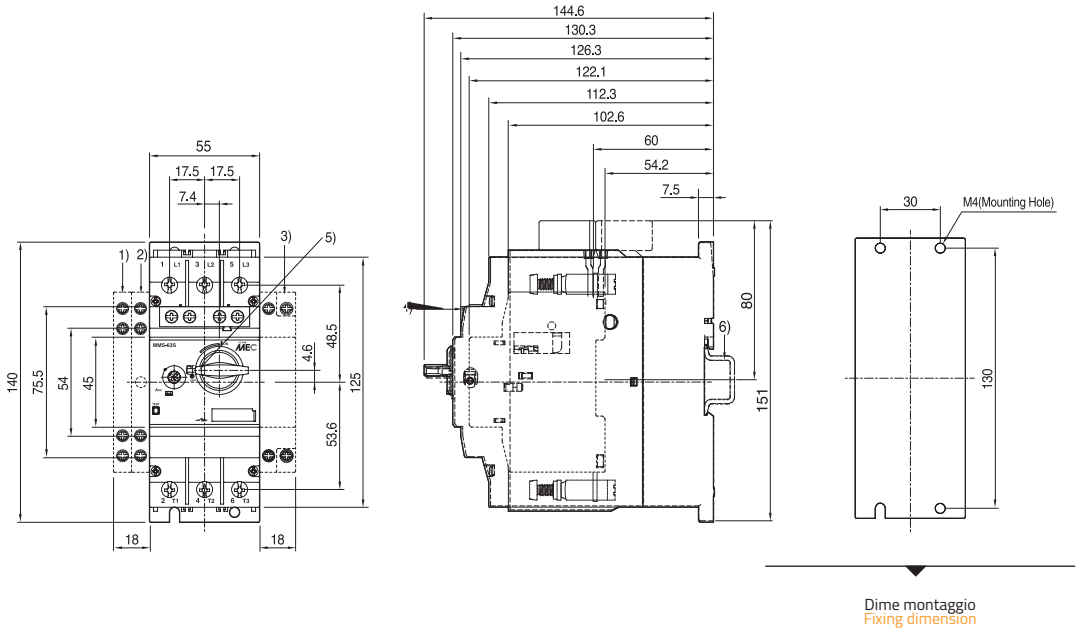
Sezioni 32-63-100
32-63-100 sections

63H



Dime montaggio
Fixing dimension

100H



Dime montaggio
Fixing dimension

Accessori
Accessories

Sezioni 32A-63A-100A / 32A-63A-100A Sections

Contatto ausiliario frontale / Front mounting auxiliary contact

	g	cod
1NO+1NC	0,018	**090SAF11**
2NO	0,018	**090SAF20**
2NC	0,018	**090SAF02**

Contatto ausiliario laterale / Side mounting auxiliary contact

1NO+1NC Montaggio a sinistra / Side mounting on the left	0,030	**090SAL11**
2NO Montaggio a sinistra / Side mounting on the left	0,030	**090SAL20**
2NC Montaggio a sinistra / Side mounting on the left	0,030	**090SAL02**

Contatto ausiliario laterale di segnalazione d'intervento magnetico e/o termico / Side mounting auxiliary contact alarm contact (any trip)

1NO+1NC Montaggio a sinistra / Side mounting on the left	0,040	**090SALS11**
2NO / Side mounting on the left	0,040	**090SALS20**
2NO / Side mounting on the left	0,040	**090SALS02**

Contatto ausiliario laterale di segnalazione d'intervento magnetico / Side mounting alarm contact (magnetic trip)

1NO+1NC Montaggio a sinistra / Side mounting on the left	0,040	**090SALM11**
2NO Montaggio a sinistra / Side mounting on the left	0,040	**090SALM20**
2NC Montaggio a sinistra / Side mounting on the left	0,040	**090SALM02**

Accessori
Accessories

Sezioni 32A-63A-100A / 32A-63A-100A Sections

g | cod

Bobina di sgancio a distanza / Shunt release

Montaggio a destra / Side mounting on the right

24V 50HZ / 28V 60 Hz	0,110	**090SB24**
110...127V 50HZ / 120V 60 Hz	0,110	**090SB110**
220...230V 50HZ / 240...260V 60 Hz	0,110	**090SB230**
240V 50HZ / 277V 60 Hz	0,110	**090SB240**
380...400V 50HZ / 440...480V 60 Hz	0,110	**090SB400**
415...440V 50HZ / 460...480V 60 Hz	0,110	**090SB440**

Bobina di minima tensione / Undervoltage release

Montaggio a destra / Side mounting on the right

24V 50HZ / 28V 60 Hz	0,110	**090SV24**
110...127V 50HZ / 120V 60 Hz	0,110	**090SV110**
220...230V 50HZ / 240...260V 60 Hz	0,110	**090SV230**
240V 50HZ / 277V 60 Hz	0,110	**090SV240**
380...400V 50HZ / 440...480V 60 Hz	0,110	**090SV400**
415...440V 50HZ / 460...480V 60 Hz	0,110	**090SV440**

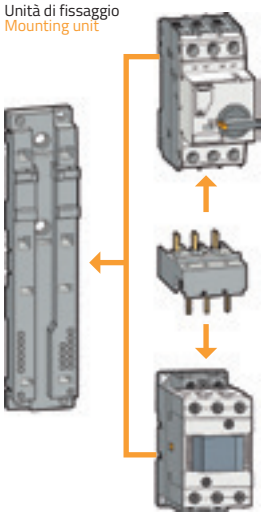
Bobina di minima tensione con contatti ausiliari anticipati 2NO / Undervoltage release with switch with 2NO advanced auxiliary contacts

Montaggio a destra / Side mounting on the right

Montaggio solo su interruttore con manopola rotativa / Mounting ony rotary handle

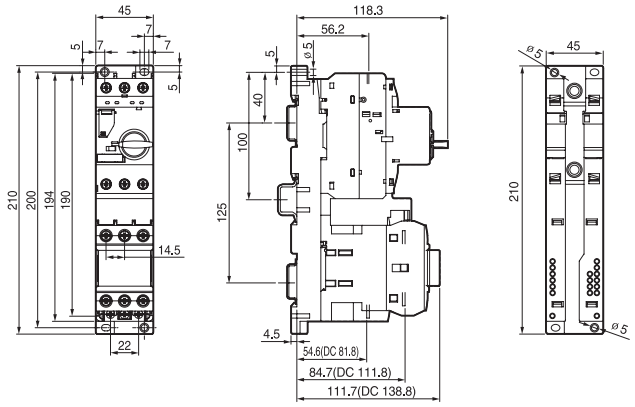
24V 50HZ / 28V 60 Hz	0,110	**090SVA24**
110...127V 50HZ / 120V 60 Hz	0,110	**090SVA110**
220...230V 50HZ / 240...260V 60 Hz	0,110	**090SVA230**
240V 50HZ / 277V 60 Hz	0,110	**090SVA240**
380...400V 50HZ / 440...480V 60 Hz	0,110	**090SVA400**
415...440V 50HZ / 460...480V 60 Hz	0,110	**090SVA440**

Combinazione di interruttore automatico e contattore
Combination manual motor starters and contactors

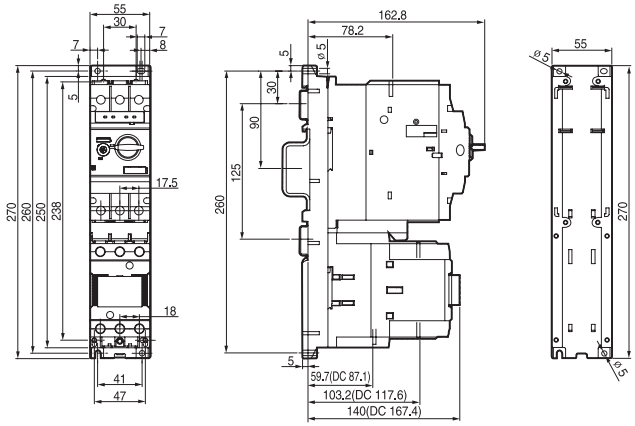


g	Unità di congiunzione	Unità di fissaggio	Interruttore	Contattore
1	090DA-16HA	090MU-45	090S32H	090M3C6÷090M3C16
1	090DA-16HD	090MU-45	090S32H	090M3C6DC÷090M3C16DC
1,2	090DA-22HA	090MU-45	090S32H	090MC9B÷090MC22B
1,2	090DA-32HA	090MU-45	090S32H	090MC32A÷090MC40A
2,3	090DA-63A	090MU-55	090S63H	090MC65A
4,6	090DA-95A	090MU-70	090S100H	090MC85A÷090MC100A

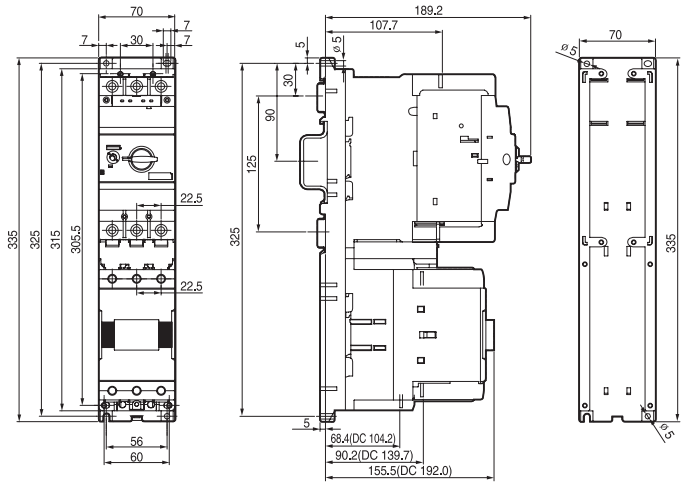
090S32H + 090MC40A



090S63H + 090MC65A



090S100H + 090MC100A



NOTE
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