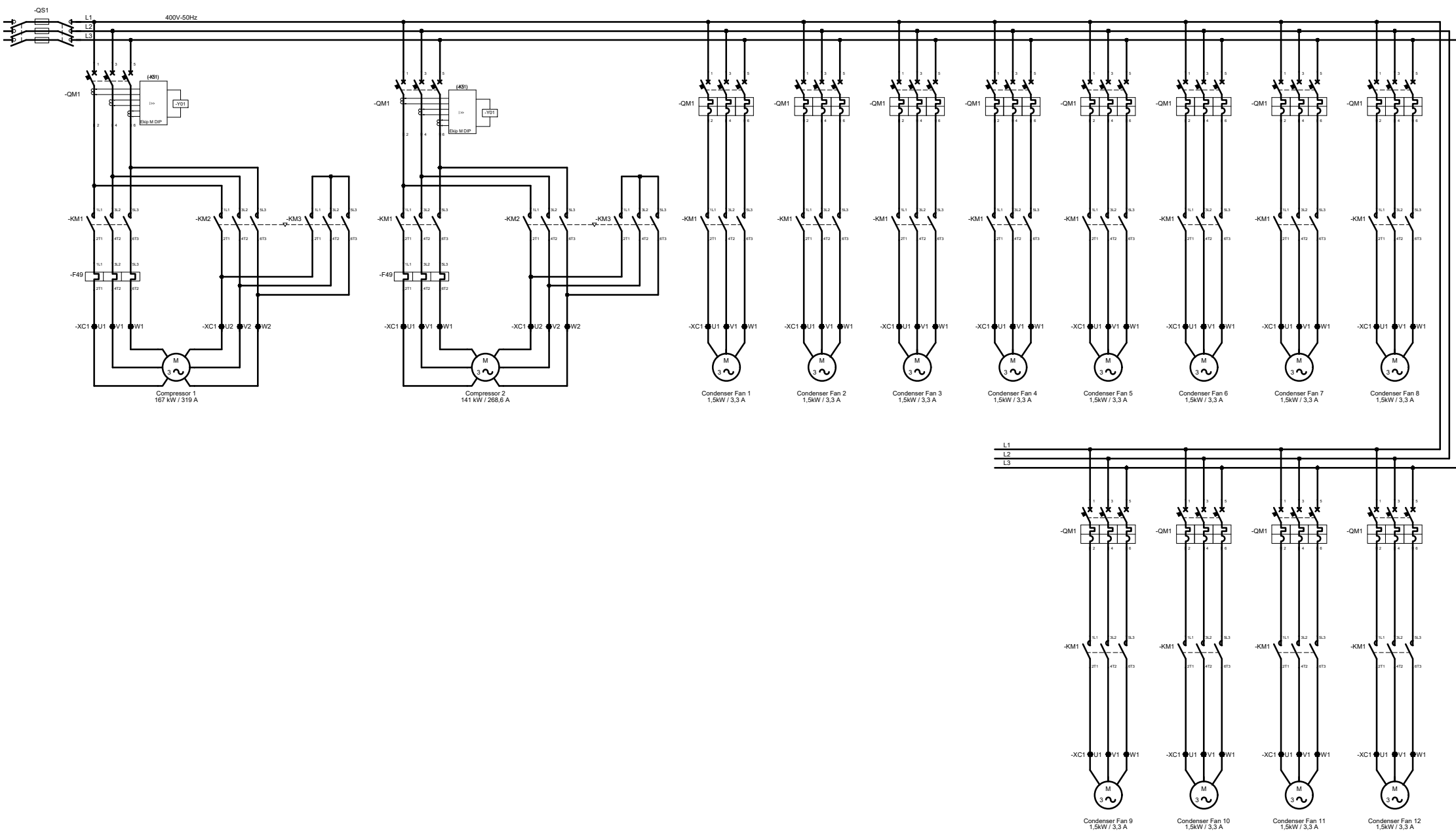




PACCHETTO D'INSTALLAZIONE

INSTALLATION PACKAGE

Motor starting and protection solution for Air-cooled
chiller system with 2 Nos. of compressors 167 & 141kW
and 12Nos. of 1.5kW condenser fans (IEC Market)

ABB

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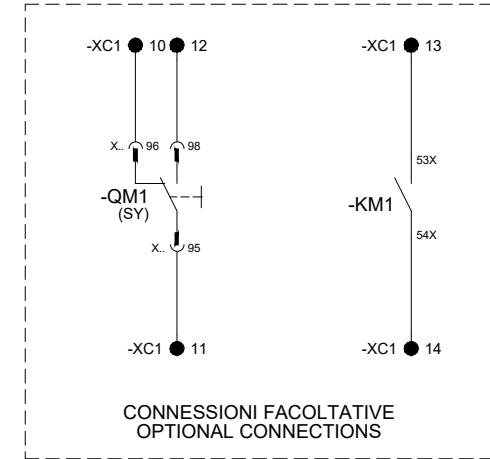
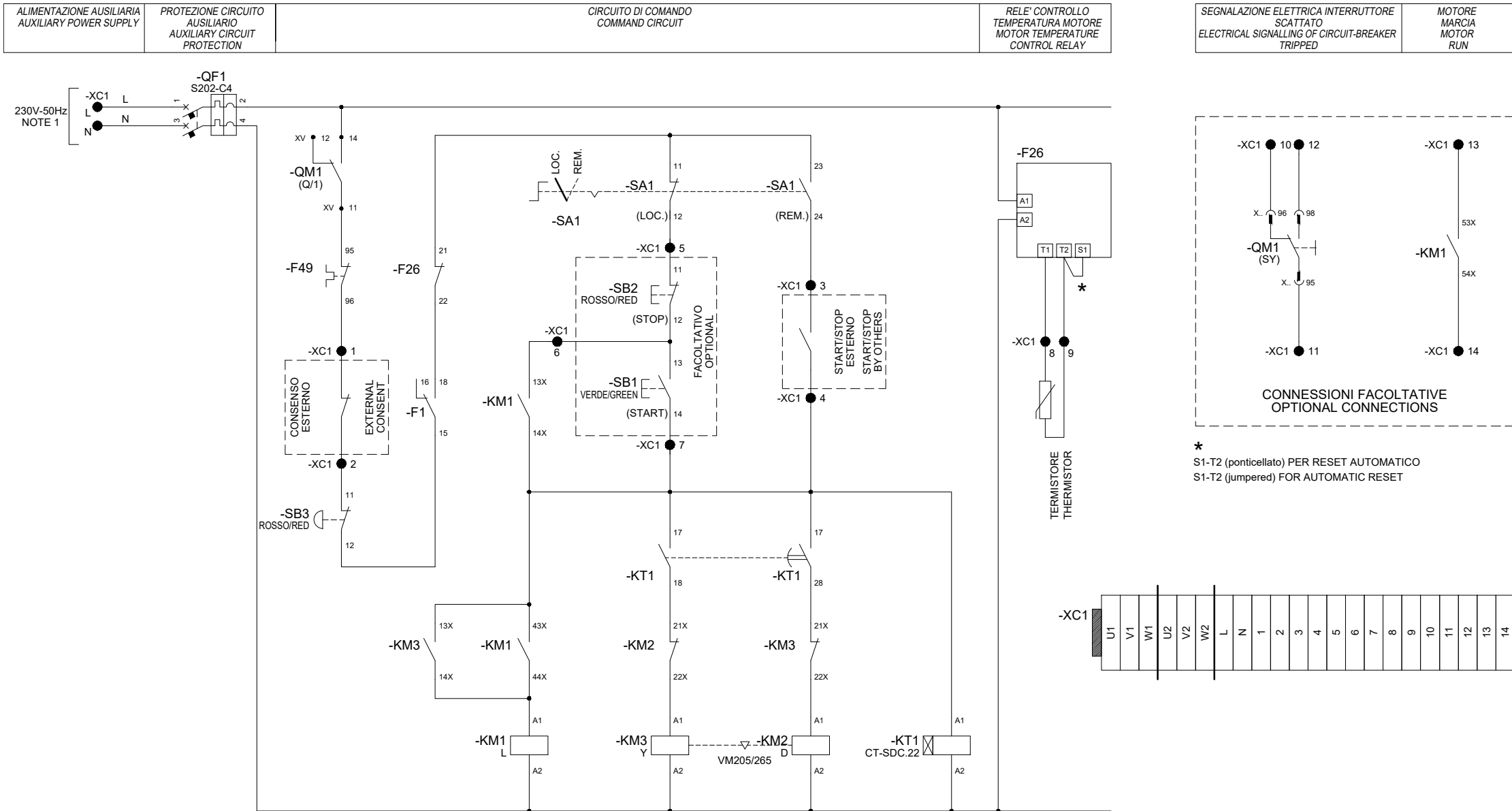
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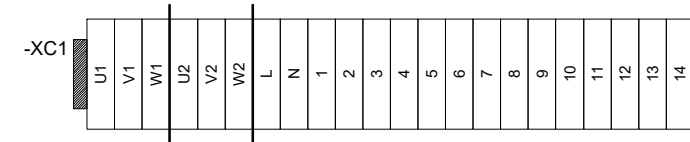
1/10

The diagram illustrates a three-phase power supply system for a compressor. The main supply is 400V-50Hz, connected to three phases: L1, L2, and L3. The system includes a main switch (-QM1) and a fuse (-FU1). The power is then distributed to three contactors (-KM1, -KM2, -KM3) and a circuit breaker (-F1). The compressor (M 3) is connected to the system via a star-delta starter (-Y01). The diagram shows the wiring for the three phases (L1, L2, L3) and the protective earth (PE).

PARTENZA MOTORE STELLA/TRIANGOLO 167kW / 319A / STAR/DELTA STARTER 167kW / 319A



S1-T2 (ponticellato) PER RESET AUTOMATICO
S1-T2 (jumped) FOR AUTOMATIC RESET



PARTENZA MOTORE STELLA/TRIANGOLO 167kW / 319A / STAR/DELTA STARTER 167kW / 319A

SIGLA / ITEM	Q.TA' / Q.TY	DESCRIZIONE / DESCRIPTION	TIPO / TYPE	FORNITORE / MANUFACTURER	CODICE / CODE
-QM1	1	Interruttore automatico 3P. 3P. Circuit breaker	XT5S 630 Ekip M Dip I In=630A	ABB	1SDA100439R1
-QM1	1	1 contatto di scambio aperto-chiuso + 1 contatto sgancio automatico 1 changeover contact open-closed + 1 changeover for tripped indication	AUX-C 1Q+1SY 250Vac/dc XT1..XT4 F/P	ABB	1SDA066431R1
-KM1, -KM2	2	Contattore AF265-30-11-13 bob. 100...250 V c.a./c.c., aux 1NA+1NC AF265-30-11-13 Contactor, 100...250 VAC/DC, aux 1NO+1NC	AF265-30-11-13	ABB	1SFL547002R1311
-KM3	1	Contattore AF190-30-11-13 bob. 100...250 V c.a./c.c., aux 1NA+1NC AF190-30-11-13 Contactor, 100...250 VAC/DC, aux 1NO+1NC	AF190-30-11-13	ABB	1SFL487002R1311
-KM1, -KM2, -KM3	3	CAL19-11 cont. 1NA+1NC per AF116...AF370 CAL19-11 Auxiliary Contact Block, 1NO+1NC for AF116...AF370	CAL19-11	ABB	1SFN010820R1011
-KM1	1	CAL19-11B cont. 1NA+1NC per AF116...AF370 CAL19-11B Auxiliary Contact Block, 1NO+1NC for AF116...AF370 (FACOLTATIVO) (OPTIONAL)	CAL19-11B	ABB	1SFN010820R3311
-F49	1	Relè termici elettronici-Montaggio diretto su contattori AF265...AF370 A/AF210...300 EF370-380 Electronic Overload Relay for AF265...AF370 A/AF210...300	EF370-380	ABB	1SAX611001R1101
-KM2, -KM3	1	Interblocco meccanico tra AF370...265 e AF205/190 Mechanical Interlock Unit	VM205/265	ABB	1SFN035203R1000
-KM1, -KM2, -KM3	1	Connssione per linea e triangolo AF265...AF370 e stella AF190...AF205 Connections for Star-Delta starters L+D=AF265, Y=AF205	BEY265-4	ABB	1SFN085413R1000
-KT1	1	CT-SDC.22 Time relay, Star-delta 2n/o, 24-48VDC/24-240VAC CT-SDC.22 Time relay, Star-delta 2n/o, 24-48VDC/24-240VAC	CT-SDC.22	ABB	1SVR508211R0100
-QF1	1	Interruttore magnetotermico - 6kA Curva C 4A - 2P - C - 4 A Miniature Circuit Breaker - 6kA Curve C 4A - 2P - C - 4 A	S202-C4	ABB	2CDS252001R0044
-SB1	1	Pulsante verde, ghiera in plastica nera Green Modular Pushbutton, Black plastic	MP1-10G	ABB	1SFA611100R1002
-SB2	1	Pulsante rosso, ghiera in plastica nera Red Modular Pushbutton, Black plastic	MP1-10R	ABB	1SFA611100R1001
-SB1, -SB2, SB3, -SA1	4	Supporto per 3 blocchi Contact Block Holder	MCBH-00	ABB	1SFA611605R1100
-SB1, -SA1	2	contatto singolo 1NO per montaggio frontale 1NO Modular contact block	MCB-10	ABB	1SFA611610R1001
-SB2, -SB3, -SA1	3	contatto singolo 1NC per montaggio frontale 1NC Modular contact block	MCB-01	ABB	1SFA611610R1010
-SB3	1	Pulsante modulare di emergenza rosso, 40mm Modular Emergency Stop - Twist release - Mushroom 40mm - Red	MPET4-10R	ABB	1SFA611523R1001
-SA1	1	Selettore modulare a due posizioni, ghiera in plastica nera Modular Selector Switch - 2-Pos Maintained - Short handle - Black plastic	M2SS1-10B	ABB	1SFA611200R1006
-FU1	1	Sezionatore portafusibili 3 Poli Fuseholder for overcurrent and short circuit protection	E93/32	ABB	2CSM204753R1801
-F1	1	Relè controllo delle fasi in sistemi trifase, tens. di controllo da 300-500V c.a. 50/60 Hz, Alim=Vn, 2 c/o con temp Three-phase monitors range, operates with a rated control supply voltage, measuring voltage of 300-500 V AC and 2 c/o output	CM-PVS.41S	ABB	1SVR730794R3300
-F26	1	Relè di controllo della temperatura nei motori (tramite termistori), Alim. 24-240V c.a./c.c. 1 NC e 1 NA Thermistor motor protection relay 1n/o+1n/c, 24-240VAC/DC	CM-MSS.21S	ABB	1SVR730722R1400



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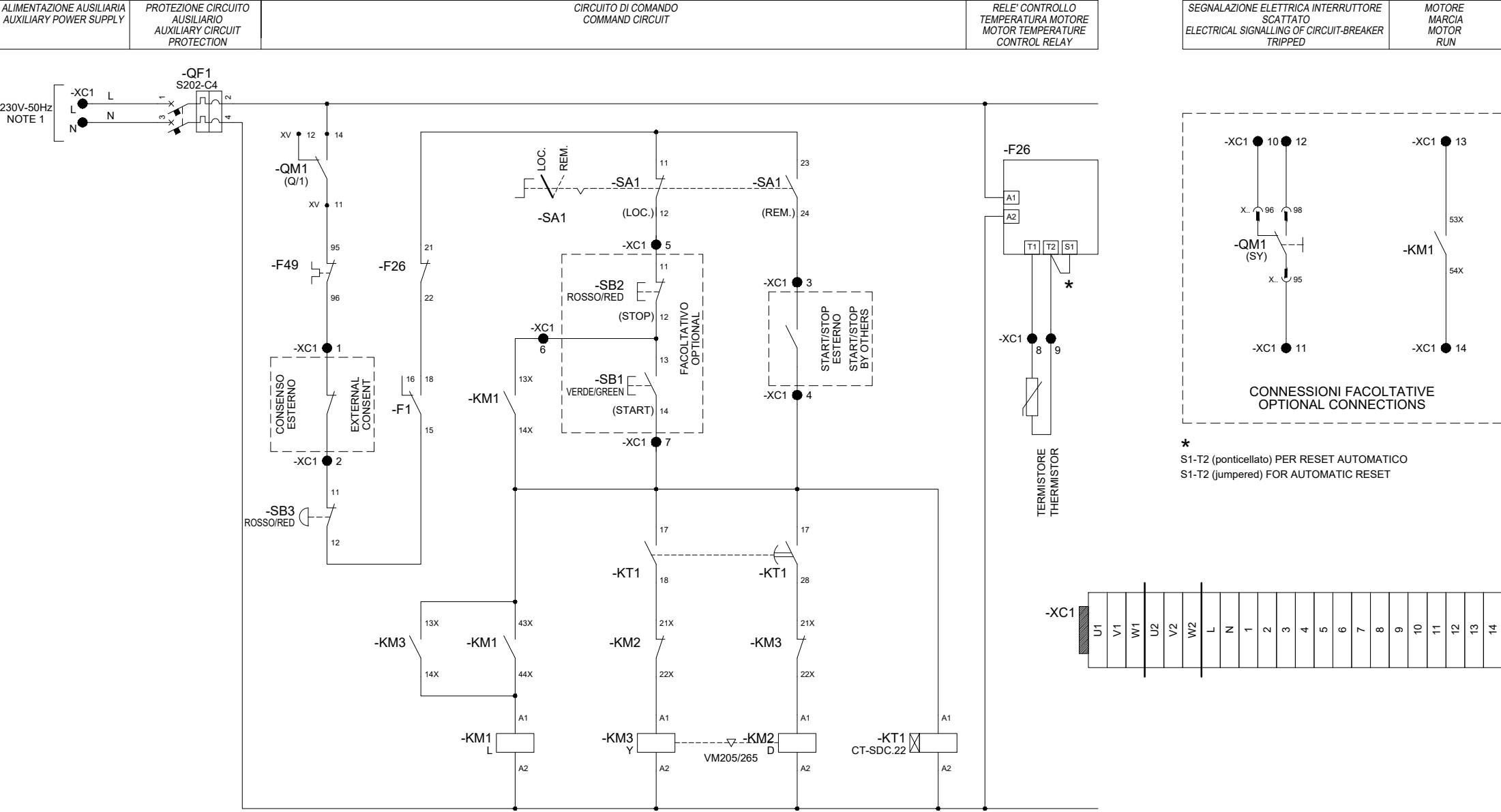
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The diagram illustrates a 400V-50Hz power supply system. The main supply lines (L1, L2, L3) enter the system and pass through a main switch (-QM1) and a fuse (-FU1). The power is then distributed to a circuit breaker (-F1) and three contactors (-KM1, -KM2, -KM3). The contactors are used to control the power to a compressor (M) and a motor (Y01). The compressor is rated at 141 kW / 268.6 A. The motor is rated at 141 kW / 268.6 A. The diagram also shows the PE (Protective Earth) connection and the wiring for the main supply, the compressor, and the motor.

PARTENZA MOTORE STELLA/TRIANGOLO 141 kW / 268,6 A / STAR/DELTA STARTER 141 kW / 268,6 A



PARTENZA MOTORE STELLA/TRIANGOLO 141 kW / 268,6 A / STAR/DELTA STARTER 141 kW / 268,6 A

SIGLA / ITEM	Q.TA' / Q.TY	DESCRIZIONE / DESCRIPTION	TIPO / TYPE	FORNITORE / MANUFACTURER	CODICE / CODE
-QM1	1	Interruttore automatico 3P. 3P. Circuit breaker	XT5S 400 Ekip M Dip I In=400A	ABB	1SDA100438R1
-QM1	1	1 contatto di scambio aperto-chiuso + 1 contatto sgancio automatico 1 changeover contact open-closed + 1 changeover for tripped indication	AUX-C 1Q+1SY 250Vac/dc XT1..XT4 F/P	ABB	1SDA066431R1
-KM1, -KM2	2	Contattore AF190-30-11-13 bob. 100...250 V c.a./c.c., aux 1NA+1NC AF190-30-11-13 Contactor, 100...250 VAC/DC, aux 1NO+1NC	AF190-30-11-13	ABB	1SFL487002R1311
-KM3	1	Contattore AF116-30-11-13 bob. 100...250 V c.a./c.c., aux 1NA+1NC AF116-30-11-13 Contactor, 100...250 VAC/DC, aux 1NO+1NC	AF116-30-11-13	ABB	1SFL427001R1311
-KM1, -KM2, -KM3	3	CAL19-11 cont. 1NA+1NC per AF116...AF370 CAL19-11 Auxiliary Contact Block, 1NO+1NC for AF116...AF370	CAL19-11	ABB	1SFN010820R1011
-KM1	1	CAL19-11B cont. 1NA+1NC per AF116...AF370 CAL19-11B Auxiliary Contact Block, 1NO+1NC for AF116...AF370 (FACOLTATIVO) (OPTIONAL)	CAL19-11B	ABB	1SFN010820R3311
-F49	1	Relè termici elettronici-Montaggio diretto su contattori AF190...AF205 e A/AF145...185 EF205-210 Electronic Overload Relay for AF190...AF205 A/AF145...185	EF205-210	ABB	1SAX531001R1101
-KM2, -KM3	1	Interblocco meccanico tra AF205/190 e AF146...AF116 Mechanical Interlock Unit	VM140/190	ABB	1SFN034403R1000
-KM1, -KM2, -KM3	1	Connessione per linea e triangolo AF190...AF205 e stella AF140...AF146 Connections for Star-Delta starters L+D=AF190, Y=AF140	BEY190-4	ABB	1SFN084813R1000
-KT1	1	CT-SDC.22 Time relay, Star-delta 2n/o, 24-48VDC/24-240VAC CT-SDC.22 Time relay, Star-delta 2n/o, 24-48VDC/24-240VAC	CT-SDC.22	ABB	1SVR508211R0100
-QF1	1	Interruttore magnetotermico - 6kA Curva C 4A - 2P - C - 4 A Miniature Circuit Breaker - 6kA Curve C 4A - 2P - C - 4 A	S202-C4	ABB	2CDS252001R0044
-SB1	1	Pulsante verde, ghiera in plastica nera Green Modular Pushbutton, Black plastic	MP1-10G	ABB	1SFA611100R1002
-SB2	1	Pulsante rosso, ghiera in plastica nera Red Modular Pushbutton, Black plastic	MP1-10R	ABB	1SFA611100R1001
-SB1, -SB2, SB3, -SA1	4	Supporto per 3 blocchi Contact Block Holder	MCBH-00	ABB	1SFA611605R1100
-SB1, -SA1	2	contatto singolo 1NO per montaggio frontale 1NO Modular contact block	MCB-10	ABB	1SFA611610R1001
-SB2, -SB3, -SA1	3	contatto singolo 1NC per montaggio frontale 1NC Modular contact block	MCB-01	ABB	1SFA611610R1010
-SB3	1	Pulsante modulare di emergenza rosso, 40mm Modular Emergency Stop - Twist release - Mushroom 40mm - Red	MPET4-10R	ABB	1SFA611523R1001
-SA1	1	Selettore modulare a due posizioni, ghiera in plastica nera Modular Selector Switch - 2-Pos Maintained - Short handle - Black plastic	M2SS1-10B	ABB	1SFA611200R1006
-FU1	1	Sezionatore portafusibili 3 Poli Fuseholder for overcurrent and short circuit protection	E93/32	ABB	2CSM204753R1801
-F1	1	Relè controllo delle fasi in sistemi trifase, tens. di controllo da 300-500V c.a. 50/60 Hz, Alim=Vn, 2 c/o con temp Three-phase monitors range, operates with a rated control supply voltage, measuring voltage of 300-500 V AC and 2 c/o output	CM-PVS.41S	ABB	1SVR730794R3300
-F26	1	Relè di controllo della temperatura nei motori (tramite termistori), Alim. 24-240V c.a./c.c. 1 NC e 1 NA Thermistor motor protection relay 1n/o+1n/c, 24-240VAC/DC	CM-MSS.21S	ABB	1SVR730722R1400



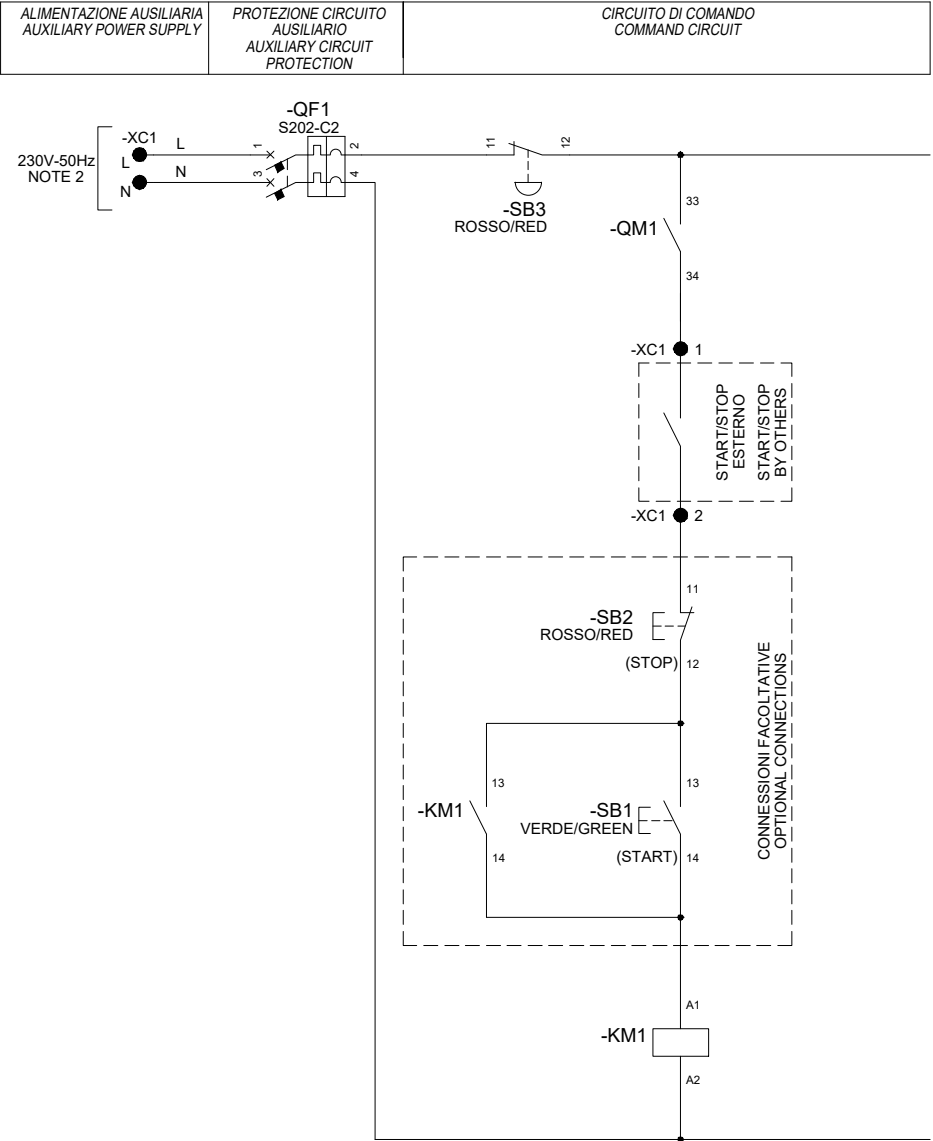
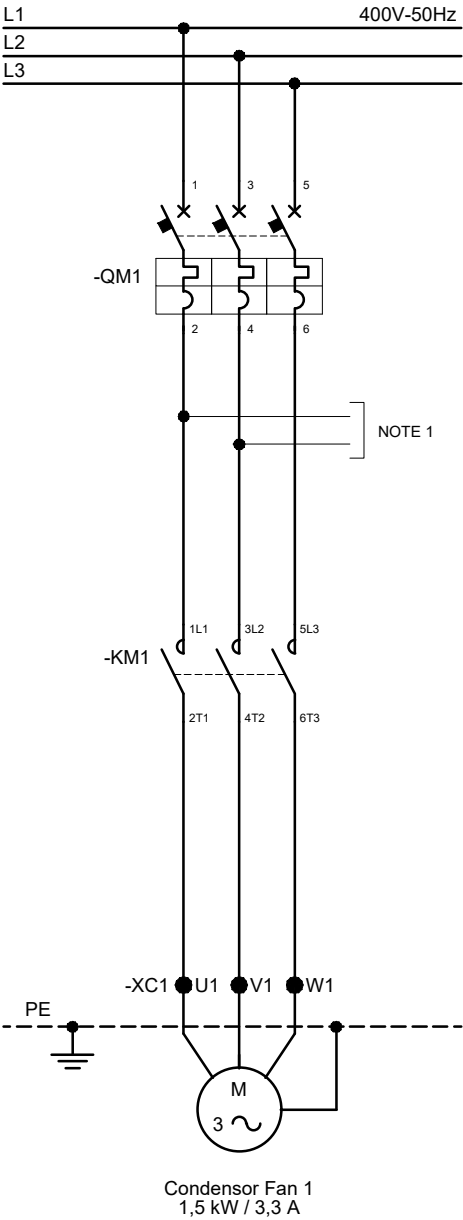
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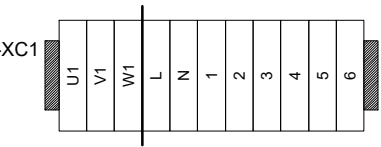
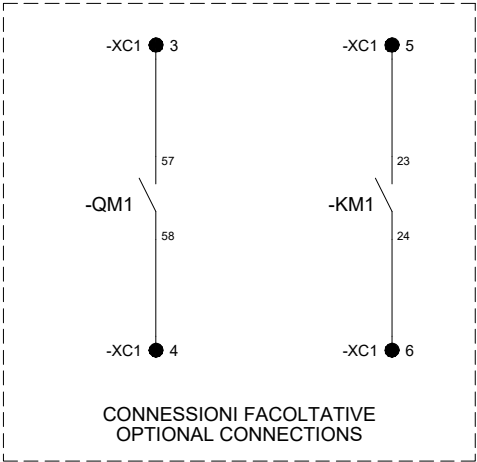
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PARTENZA MOTORE DOL 1,5 kW / 3,3 A / DOL MOTOR STARTER 1,5 kW / 3,3 A



SEGNALAZIONE ELETTRICA INTERRUTTORE SCATTATO ELECTRICAL SIGNALLING OF CIRCUIT-BREAKER TRIPPED	MOTORE MARCIA MOTOR RUN
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NOTE 1
Punto di connessione per trasformatore ausiliario 400 / 230V
Connection point for auxiliary transformer 400 / 230V

NOTE 2
Arrivo da linea principale con trasformatore 400/230V
Incoming from main line with 400 / 230V transformer

PARTENZA MOTORE DOL 1,5 kW / 3,3 A / DOL MOTOR STARTER 1,5 kW / 3,3 A

SIGLA / ITEM	Q.TA' / Q.TY	DESCRIZIONE / DESCRIPTION	TIPO / TYPE	FORNITORE / MANUFACTURER	CODICE / CODE
-QM1	12	Salvatore - In : 4A - Connessioni a molla Push-in Manual Motor Starter - In : 4A - Push-in spring terminals	MS132-4.0K	ABB	1SAM350010R1008
-QM1	12	Contatti ausiliari 1NO + 1NC per MS116, Mx132 e Mx165 - Connessioni a molla Push-in Aux.-contact 1NO + 1NC for MS116, Mx132 e Mx165 - Push-in spring terminals	HK1-11K	ABB	1SAM201902R1201
-QM1	12	Contatto di segnalazione intervento magnetotermico 1NO + 1NC - Connessioni a molla Push-in Signaling contacts 1NO + 1NC signal the tripping of the manual motor starter - Push-in spring terminals	SK1-11K	ABB	1SAM201903R1201
-KM1	12	AF09-30-10-13 bob. 100...250 V c.a./c.c., aux 1NO - Connessioni a molla Push-in AF09-30-10-13 100...250 VAC/DC, aux 1NO - Push-in spring terminals	AF09-30-10K-13	ABB	1SBL137005R1310
-KM1	12	Blocco contatto ausiliario unipolare per montaggio frontale, 1NO - Connessioni a molla Push-in Auxiliary contact block for front mounting, 1NO - Push-in spring terminals	CA4-10K	ABB	1SBN010160R1010
-QM1, -KM1	12	Adatt. tra AF09..16 con MS116/132 fino a 25A, per connessioni a molla Connecting Link with Manual Motor Starter, for push-in spring terminals	BEA16-4K1	ABB	1SBN081324T1000
-KM1	4	Barrette di collegamento max 65 A per MS116 e Mx132 3-phase busbar for 3 MS116 / Mx132, Ie=65A	PS1-3-65K	ABB	1SAM301903R1013
-KM1	4	Accessori per barrette di collegamento 3-phase power infeed block	S1-M1-25	ABB	1SAM201907R1101
-QF1	12	Interruttore magnetotermico - 6kA Curva C 2A - 2P - C - 2 A Miniature Circuit Breaker - 6kA Curve C 2A - 2P - C - 2 A	S202-C2	ABB	2CDS252001R0024
-SB1	12	Pulsante verde, ghiera in plastica nera Green Modular Pushbutton, Black plastic	MP1-10G	ABB	1SFA611100R1002
-SB2	12	Pulsante rosso, ghiera in plastica nera Red Modular Pushbutton, Black plastic	MP1-10R	ABB	1SFA611100R1001
-SB1, -SB2, -SB3	36	Supporto per 3 blocchi Contact Block Holder	MCBH-00	ABB	1SFA611605R1100
-SB1	12	contatto singolo 1NO per montaggio frontale 1NO Modular contact block	MCB-10	ABB	1SFA611610R1001
-SB2, -SB3	24	contatto singolo 1NC per montaggio frontale 1NC Modular contact block	MCB-01	ABB	1SFA611610R1010
-SB3	12	Pulsante modulare di emergenza rosso, 40mm Modular Emergency Stop - Twist release - Mushroom 40mm - Red	MPET4-10R	ABB	1SFA611523R1001

SEGNI GRAFICI PER SCHEMI ELETTRICI (NORME IEC 617 E CEI 3-14...3-26)

GRAPHICAL SYMBOLS FOR ELECTRICAL DIAGRAMS (617 IEC STANDARDS)

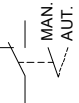
SEGNO SYMBOL	IEC REF. NUMBER	LEGENDA CAPTION		03-03-05	-PRESA E SPINA (FEMMINA E MASCHIO) -PLUG AND SOCKET (MALE AND FEMALE)		07-15-07	-BOBINA DI COMANDO DI UN RELE' CON RITARDO ALLA RICADUTA -RELAY COIL OF A SLOW-RELEASING RELAY
	02-08-01	-EFFETTO TERMICO -THERMAL EFFECT		06-04-01	-MOTORE (SEGNO GENERALE) -MOTOR (GENERAL SYMBOL)		07-15-08	-BOBINA DI COMANDO DI UN RELE' CON RITARDO ALL'ATTRAZIONE -RELAY COIL OF A SLOW-OPERATING RELAY
	02-08-02	-EFFETTO ELETTROMAGNETICO -ELECTROMAGNETIC EFFECT		06-09-11	-TRASFORMATORE DI CORRENTE -CURRENT TRANSFORMER		07-21-01	-FUSIBILE (SEGNO GENERALE) -FUSE (GENERAL SYMBOL)
-----	02-12-01	-COLLEGAMENTO MECCANICO, PNEUMATICO O IDRAULICO -MECHANICAL, PNEUMATIC OR HYDRAULIC CONNECTION (LINK)		07-02-01	-CONTATTO DI CHIUSURA -MAKE CONTACT		07-21-08	-SEZIONATORE CON FUSIBILE INCORPORATO -FUSE-DISCONNECTOR (FUSE ISOLATOR)
	02-12-05	-MOVIMENTO RITARDATO (NEL SENSO DELLO SPOSTA- MENTO DELL'ARCO VERSO IL PROPRIO CENTRO) -DELAYED ACTION (IN THE DIRECTION OF MOVEMENT FROM THE ARC TOWARDS ITS CENTRE)		07-02-03	-CONTATTO DI APERTURA -BREAK CONTACT		07-13-02	-CONTATTORE (CONTATTO APERTO A RIPOSO) -CONTACTOR (CONTACT OPEN IN UNOPERATED POS.)
----- 	02-12-11	-INTERBLOCCO MECCANICO TRA DUE APPARECCHI -MECHANICAL INTERLOCK BETWEEN TWO DEVICES		07-02-04	-CONTATTO DI SCAMBIO CON INTERRUZIONE MOMEN- -CHANGE-OVER BREAK BEFORE MAKE CONTACT TANEA		04-01-01	-TERMISTORE -THERMISTOR
	02-13-01	-COMANDO MECCANICO MANUALE (CASO GENERALE) -MANUALLY OPERATED CONTROL (GENERAL CASE)		07-08-02	-CONTATTO DI POSIZIONE DI APERTURA (FINE CORSA) -POSITION SWITCH (LIMIT SWITCH), BREAK CONTACT			
	02-13-26	-COMANDO A MOTORE ELETTRICO -OPERATED BY ELECTRIC MOTOR		(07-11-06)	-ELEMENTO DI COMMUTATORE UNIPOLARE A DUE POSIZIONI CON DIAGRAMMA DI POSIZIONE -SINGLE-POLE TWO-POSITION SWITCH WITH POSITION DIAGRAM			
•	03-02-01	-CONNESSIONE DI CONDUTTORI -CONNECTION OF CONDUCTORS		(07-13-101)	-INTERRUTTORE DI POTENZA AD APERTURA AUTOMATICA -CIRCUIT BREAKER WITH AUTOMATIC RELEASE			
•	03-02-02	-TERMINALE O MORSETTO -TERMINAL		07-15-01	-BOBINA DI COMANDO (SEGNO GENERALE) -OPERATING DEVICE (GENERAL SYMBOL)			



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