

Scotsman®

MC 16/16 SHORT – MC 46

MF 56 –MF 66 - MF 86

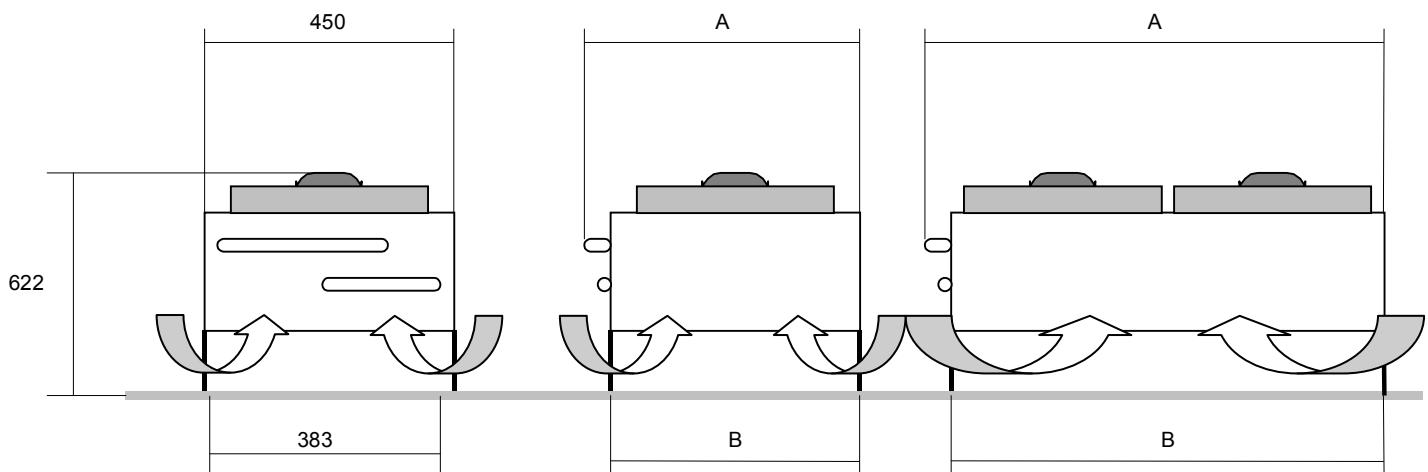
MV 450 – MV 600

MV 800 - MV 1000

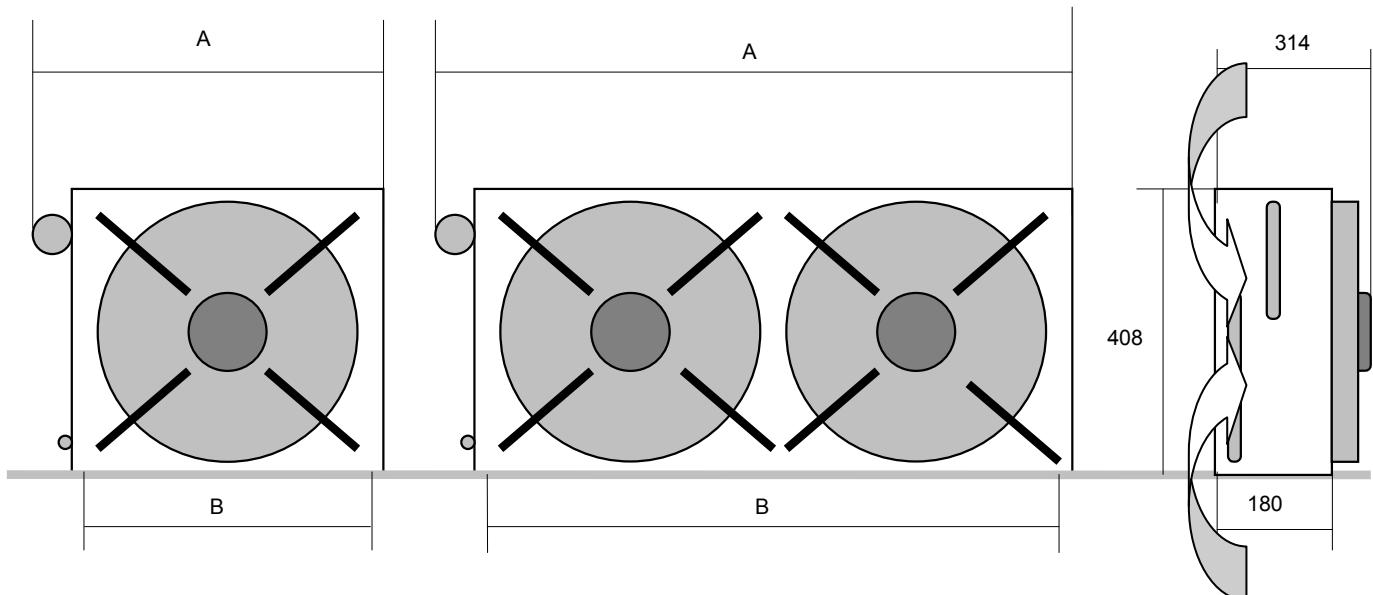
**REMOTE AIR COOLED
CONDENSER**

SERVICE MANUAL

HORIZONTAL INSTALLATION (RECOMMENDED)



VERTICAL INSTALLATION



	1 FAN MOTOR	2 FAN MOTORS	3 FAN MOTORS
A mm	560	1340	1980
B mm	439	1139	1779

REFRIGERANT CHARGE R404A - Gr

MC 16	MC 16 SHORT	MC 46	MF 56	MF 66	MF 86	MV 450	MV 600	MV 800	MV 1000
880	740	1375	1200	2700	5700	1200	1300	3000	3000

WEATHER PROOF AIR COOLED REMOTE CONDENSER

The remote condenser versions of Cubers and Flakers are similar to the air cooled standard versions with the only difference of the remote condenser and, on MC and MF series, of the Fan Speed Control used to supply power to the fan motor/s.

Technical specifications

1. Remote air cooled condenser fit on proper brackets for horizontal and vertical installation (MV series for vertical installation only). Cooling capacity with ΔT 15K is 4,5 KW on MC 16/16 SHORT, MC 46, MF 56, MV 450 and MV 600; 6,0 KW on MV 800 and MV 1000; 10,5 KW on MFE 61; 20,5 KW on MF 83.
2. Fan motor/s 220-240/50-60/1 - 135 Watts - 0,6 Amps with IP 44 protection (against liquids and solids) and flow rate of 2150 m³/hr (2 motors on MF 66; 3 motors on MF 86).
3. On MC and MF series only, an Electronic Fan Speed Control set to 16 bar. On MV series a standard ON-OFF hi pressure control (15÷17 bars).
4. Pre-charged refrigerant lines of 10 meters length equipped with AEROQUIP quick connections.
5. Hi pressure safety control (manual reset type) set to 34 bar on MC and MF series (in place of the condenser temperature sensor) and to 30 bar on MV series.
6. Hi pressure control warning light.

Installation of the remote air cooled condenser and pre-charged refrigerant lines

A. Location considerations:

Select the best available place protected from dirt/dust.

The weather proof remote air cooled condenser can be installed indoor as well as outdoor and can operate under the most different conditions (rain, wind, snow, etc.)

Use the following formula for planning the location of the condenser and ice machine.

Location Limits – Condenser location must not exceed ANY of the following limits

Maximum vertical drop **dd** of 1 meter between the icemaker and the remote condenser.

Maximum vertical rise **rd** of 3 meters.

Physical line set maximum length between icemaker and remote condenser is 10 meters.

Limit to max. one rise and one drop.

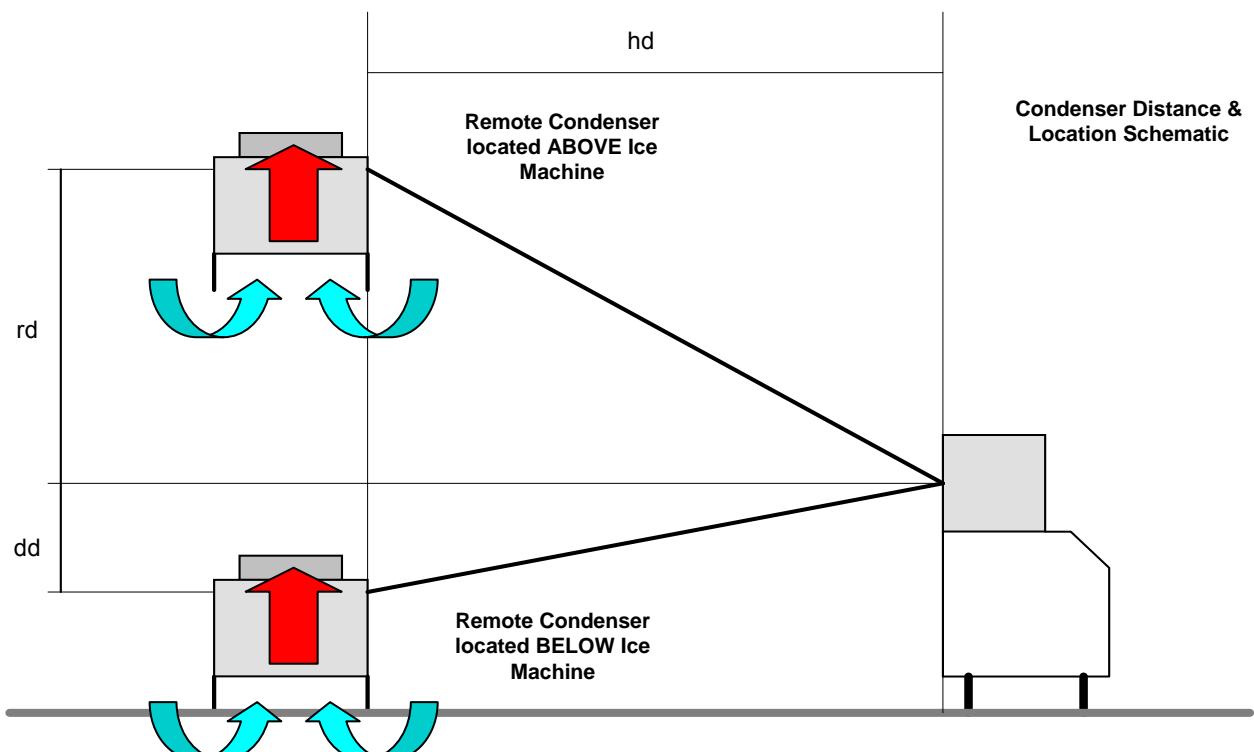
Limit the **calculated distance (CD)** as per the Calculation formula to 18 meters.

$$A = \text{Drop} = dd \times 6.6$$

$$B = \text{Rise} = rd \times 1.7$$

$$C = \text{Horizontal run} = hd \times 1$$

$$CD = A + B + C$$



B. Unpacking and inspection:

Visually inspect the exterior of the shipping container; any severe damage should be reported to the delivery carrier.

Uncrate the remote condenser and pre-charged refrigerant lines and inspect for any concealed damage. Notify carrier of any concealed damage. Check that the pre-charged refrigerant lines are intact, not kinked.

C. Remote condenser installation

Install and attach the remote condenser to the floor or to the wall of the building using methods and practices conform to the local building requirements.

Remove the control box cover from the remote condenser and connect the electrical power line coming from the unit following the wires colors.

NOTE. *Cable connecting the unit to the remote condenser is at 230 Volts so it is imperative to have the cable properly protected inside a plastic or metal tube according to the local electrical code/standard.*

D. Pre-charged refrigerant lines

The set of pre-charged refrigerant lines consists of the 3/8" O.D. self sealing gas line and 1/4" O.D. self sealing liquid line both equipped with 1-20" UNEF AEROQUIP quick connections on MC 16/16 SHORT, MC 46, MF 56, of 12 mm and 8 mm O.D. on MV 450-600 and 14 mm and 12 mm O.D. on MV 800-1000.

On models MF 66 the pre-charged refrigerant lines are 1/2" O.D. gas line and 3/8" O.D. liquid line both equipped with 1-20" UNEF AEROQUIP quick connections.

On model MF 86 only, 16 mm O.D. gas line and 12 mm O.D. liquid line with AEROQUIP quick connections too.

Whenever the length of the pre-charged refrigerant lines are longer then the distance between the ice maker and the remote condenser

keep the excess portion indoor shaped as a vertical spiral so to avoid refrigerant trapping.

CAUTION. Each coupling on the pre-charged refrigerant lines is self-sealed and should be tightened 1/4 turn more than snug tight.

ALWAYS USE TWO WRANCES WHEN TIGHTENING THESE FITTINGS, ONE AS BACKUP WRENCH TO PREVENT TWISTING OF TUBING AND POSSIBLE KINKING OR LINE RUPTURE.

Connect the gas line coupling to the remote condenser refrigerant fitting (labeled GAS) and to the refrigerant fitting on the rear side of the ice machine.

Connect the liquid line coupling to the remote condenser refrigerant fitting (labeled LIQUID) and to the refrigerant fitting on the rear side of the ice machine.

ATTENTION. The inlet of the remote air cooled condenser (gas) must be always located above the outlet (liquid) for both horizontal and vertical installations.

Operating instructions

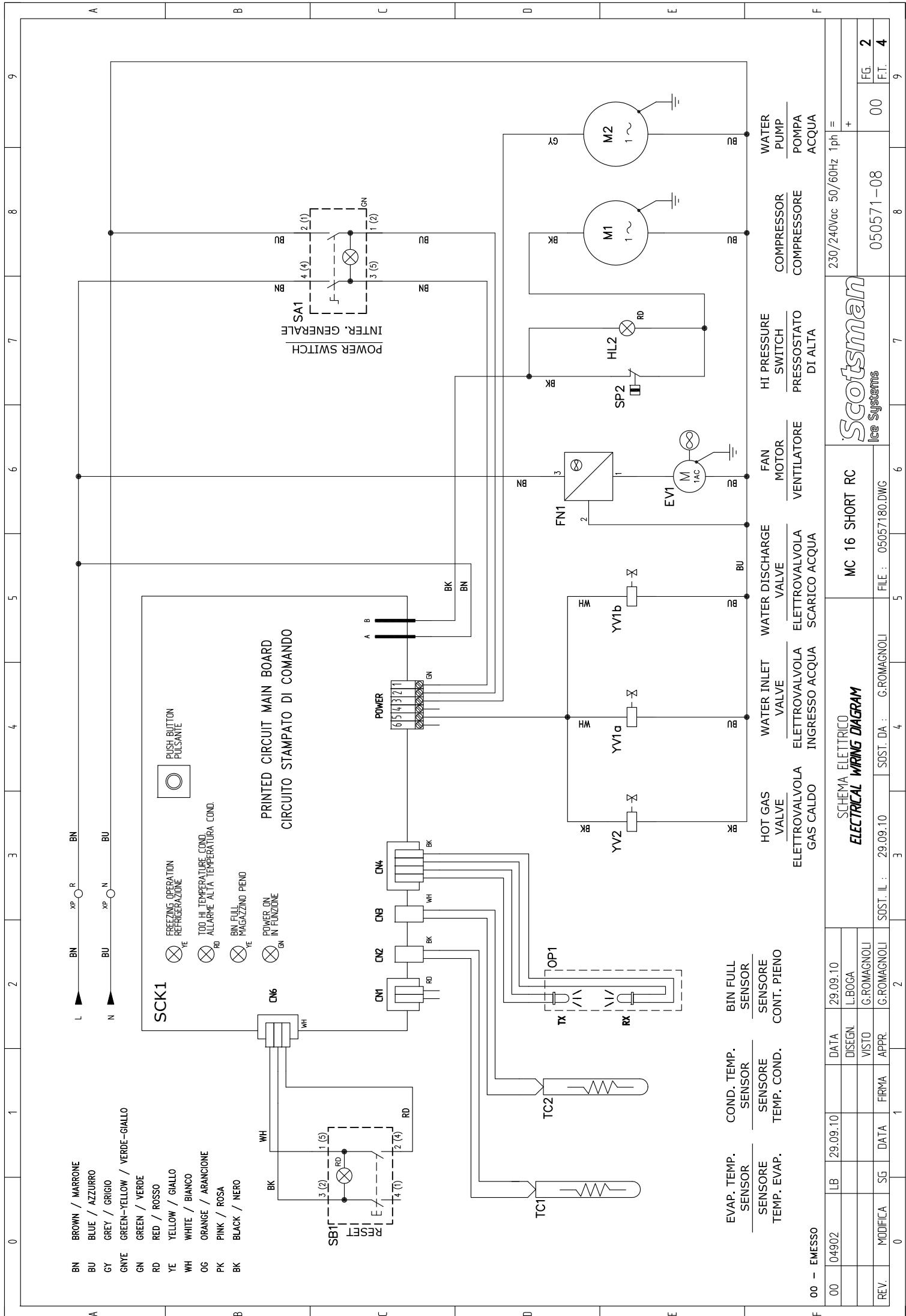
The remote air cooled condenser versions of Cubers and Flakers are operating in the same way as the standard machine.

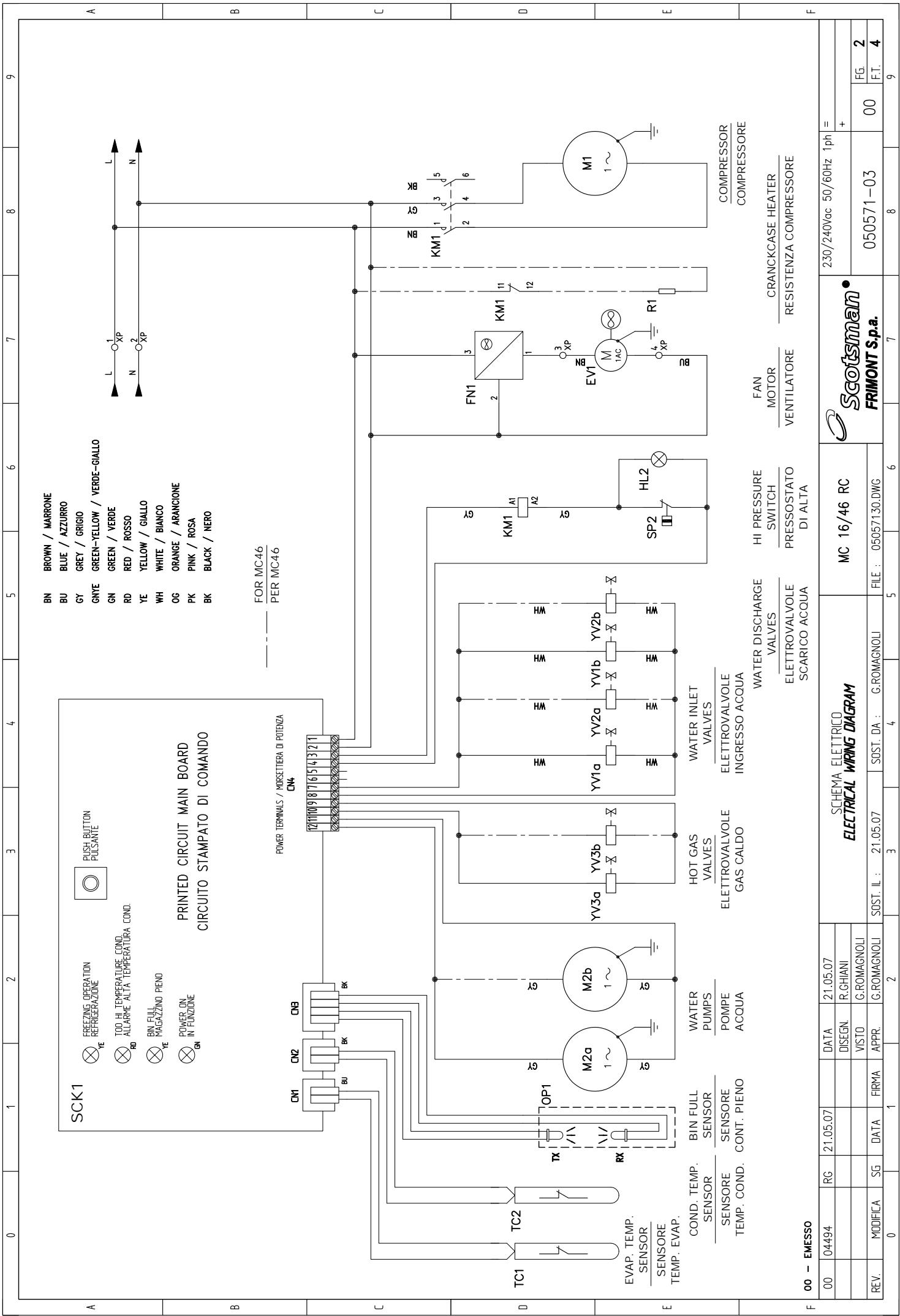
The only difference is the operation of the fan motor on MC and MF series as on the remote condenser versions it is no longer possible to use the condenser sensor to control the ON-OFF operation of the same.

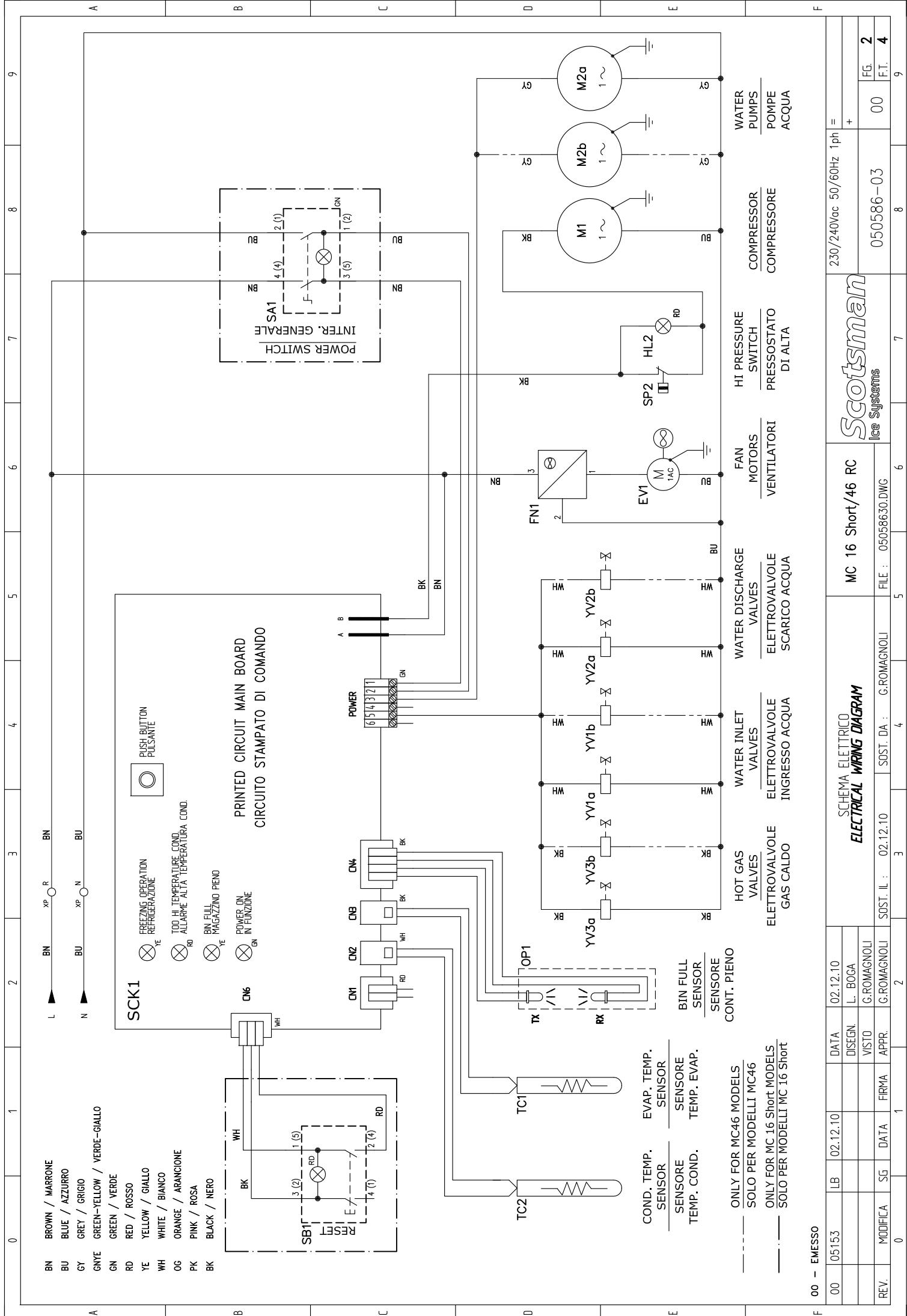
In place of the condenser sensor has been installed an electronic fan speed control (set up at 16 bar by its adjusting screw) and a manual reset type hi pressure control.

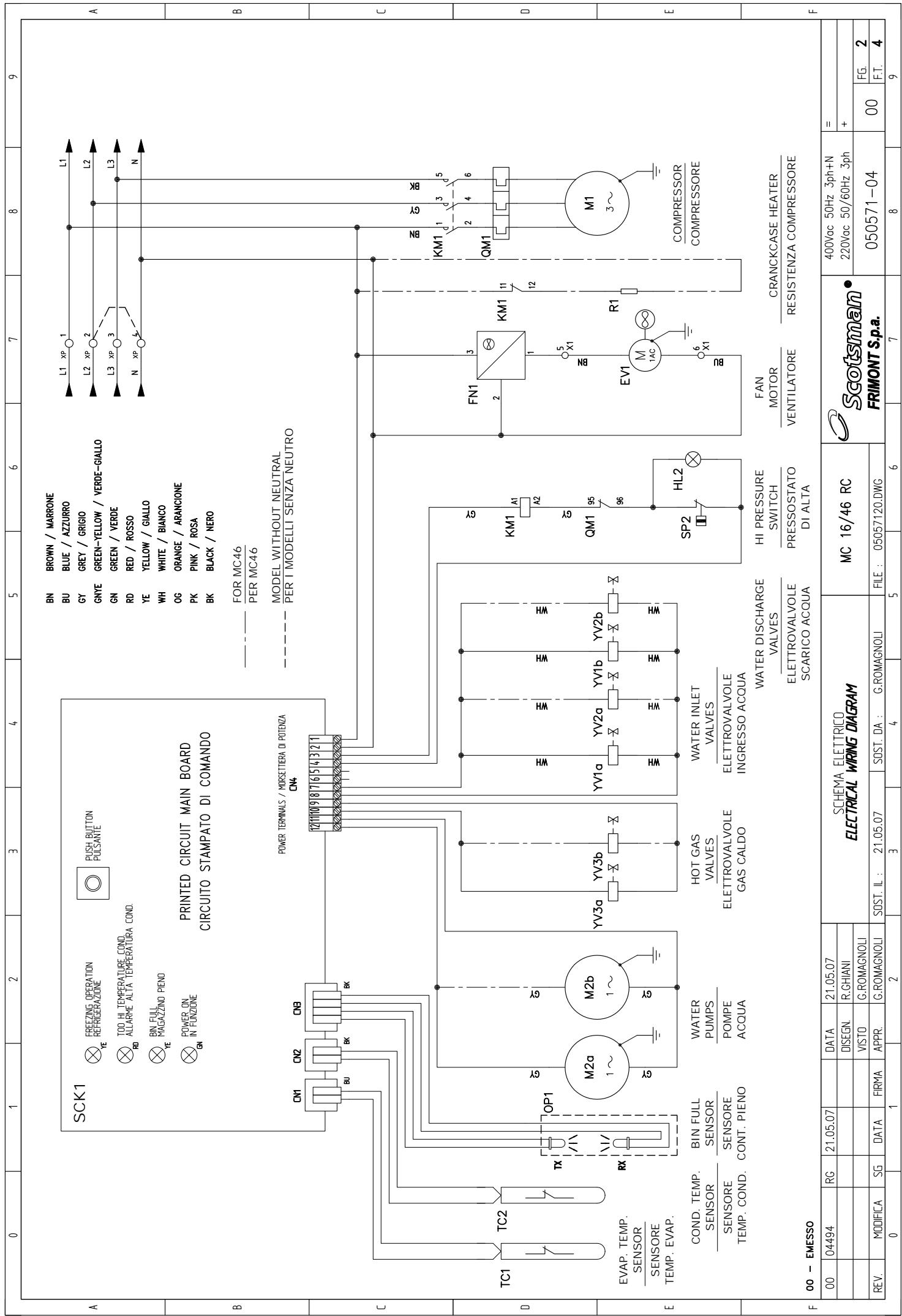
The fan speed control supplies a variable power to the fan motor so to modulate its speed and keep to a constant value the discharge pressure. The hi pressure control is used only as a safety device to switch OFF the operation of the machine in case of fan motor failure.

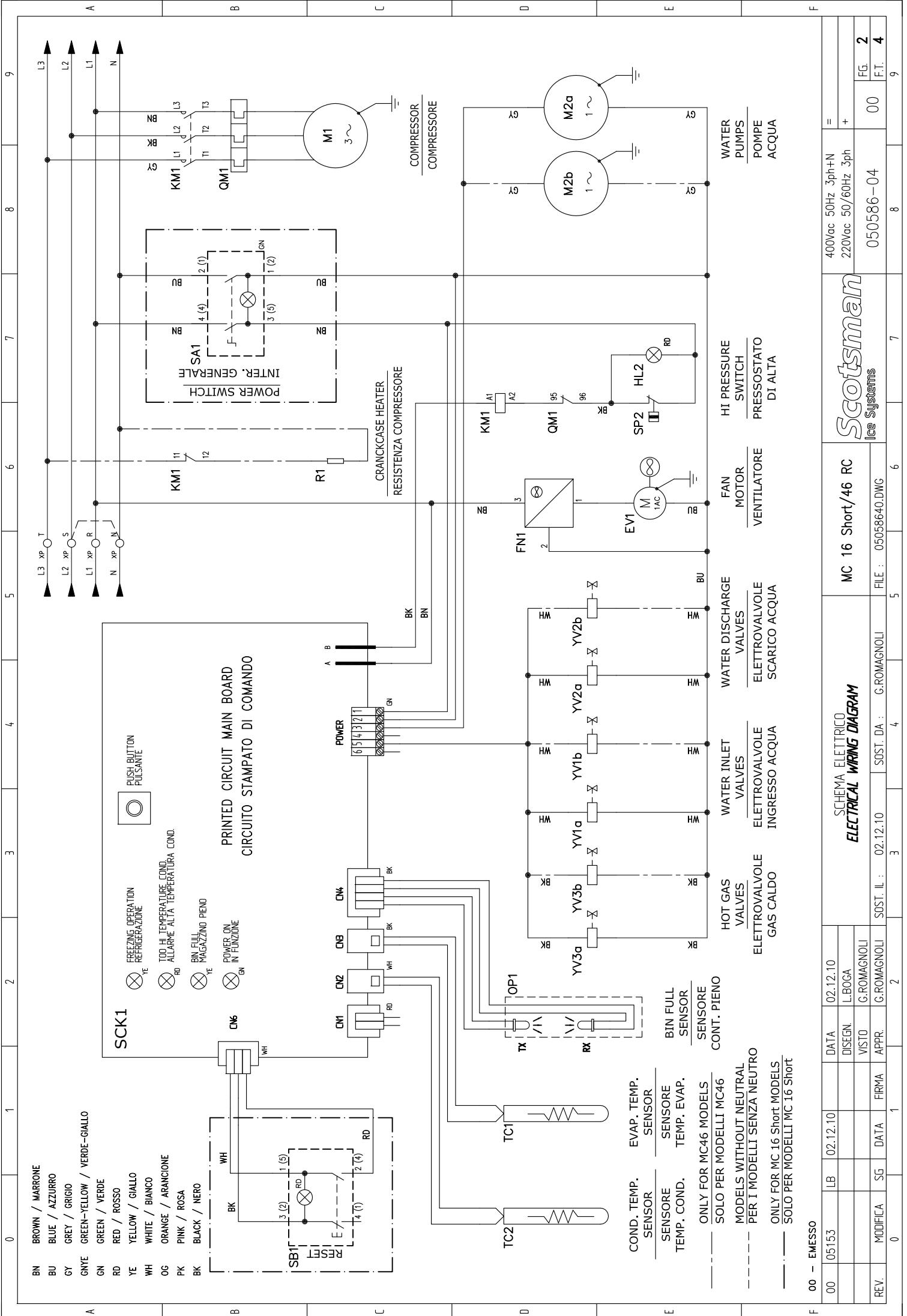
	MC 16-16 SHORT MC 46 - MF 56	MV 450-600	MV 800-1000	MF 66	MF 86
Remote air cooled condenser & fan motor assy	620418 00	620418 00	CM 19177506	620418 01	620418 02
Fan motor assy - LU.VE.-CONTARDO	001028 30	001028 30	001028 30	001028 30	*****
Fan motor assy - ECO	001028 32	*****	*****	001028 32	001028 32
Hi pressure control (safety)	620498 00	620231 01	620231 01	620498 00	620498 00
Fan speed control/Electronic device	620500 00	*****	*****	620500 00	620500 00
Fan pressure control	*****	CM 19550624	CM 19550624	*****	*****
Low pressure control	*****	*****	*****	*****	620451 00
Liquid receiver	*****	CM 19635339	CM 19635354	*****	*****
AEROQUIP male connection - LIQUID	650438 01	650438 01	650438 01	650438 00	650438 00
AEROQUIP female connection - LIQUID	650437 01	650437 01	650437 01	650437 00	650437 00
AEROQUIP male connection - GAS	650438 01	650438 01	650438 01	650438 00	650438 05
AEROQUIP female connection - GAS	650437 01	650437 01	650437 01	650437 00	650437 05

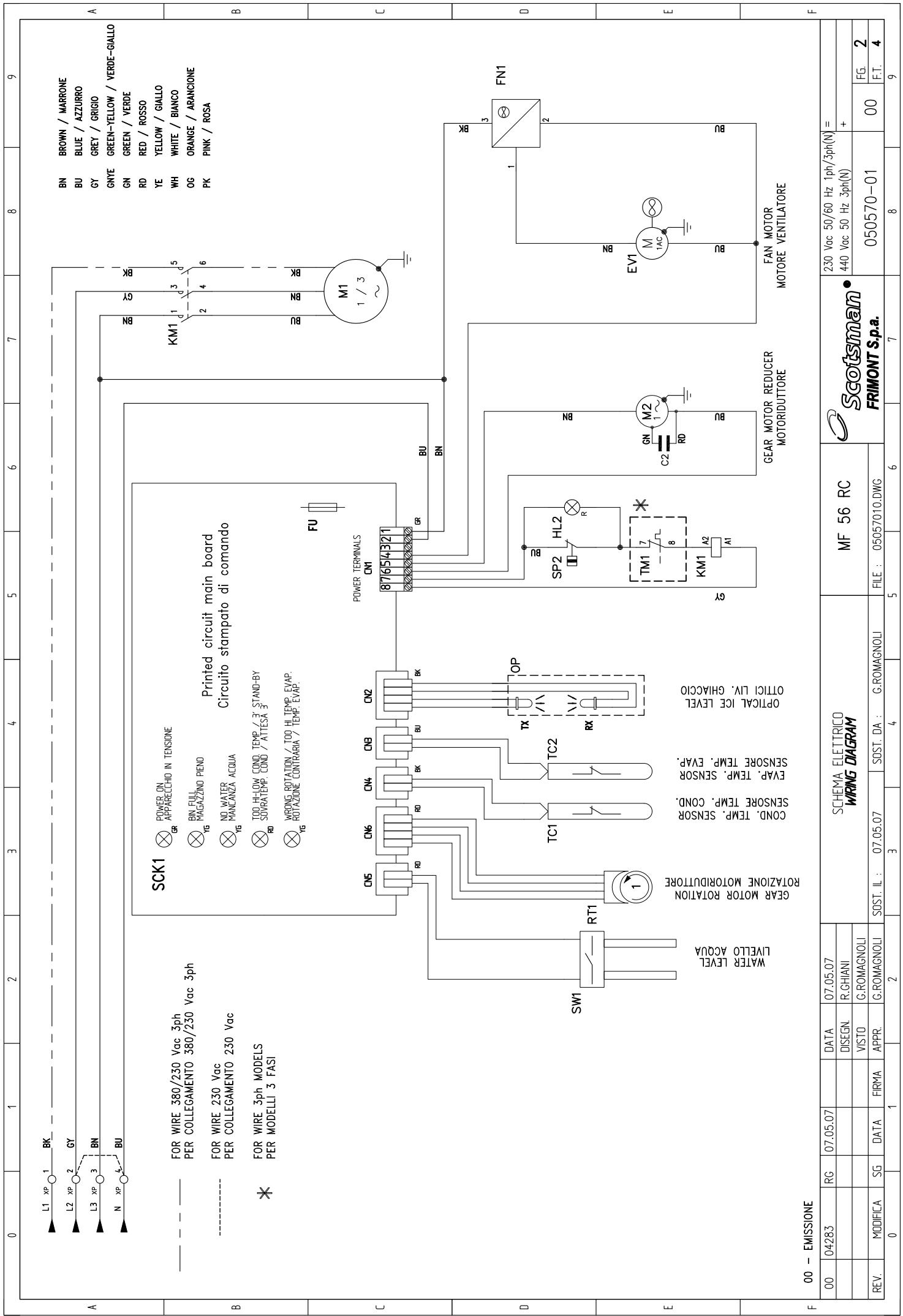


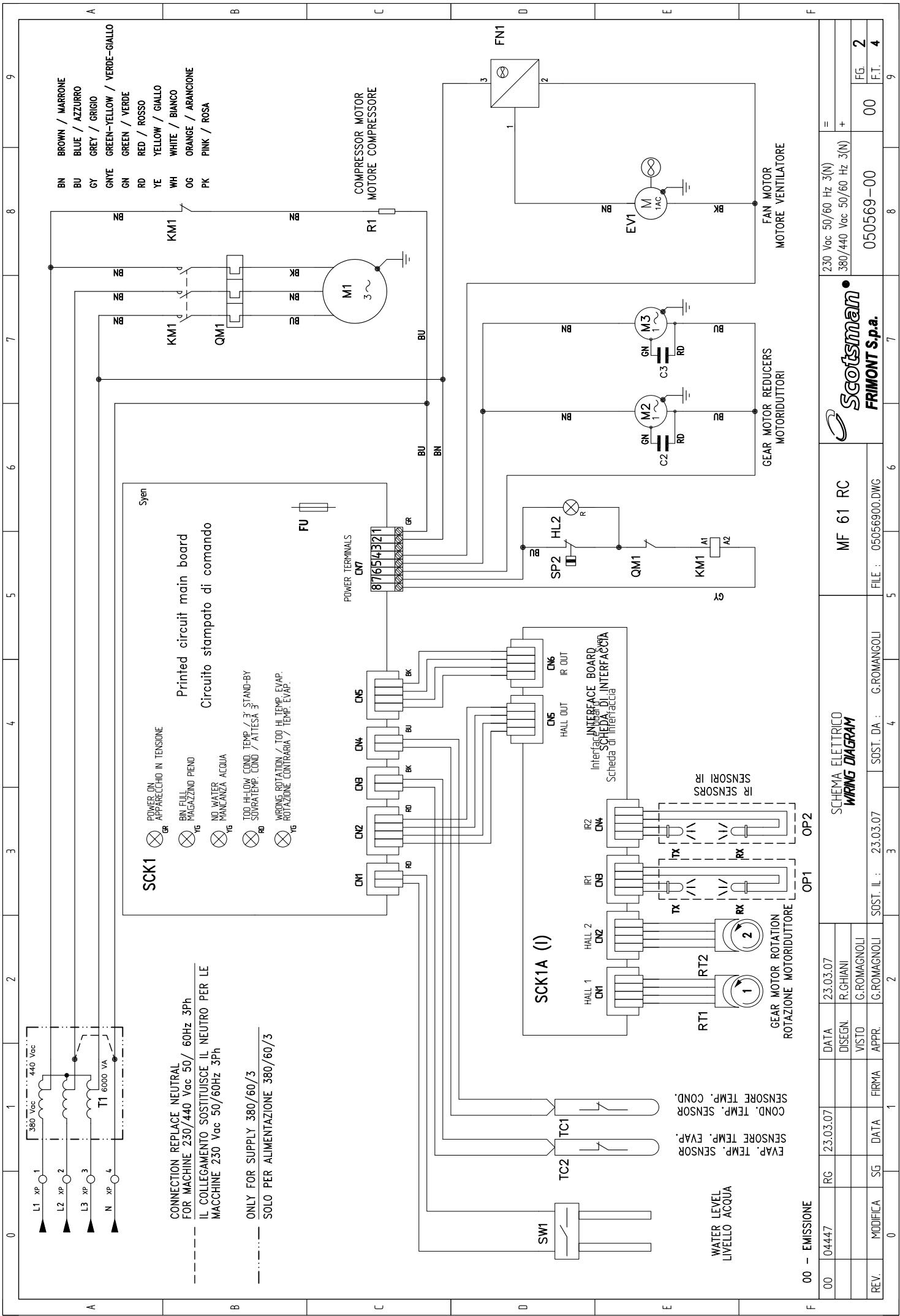


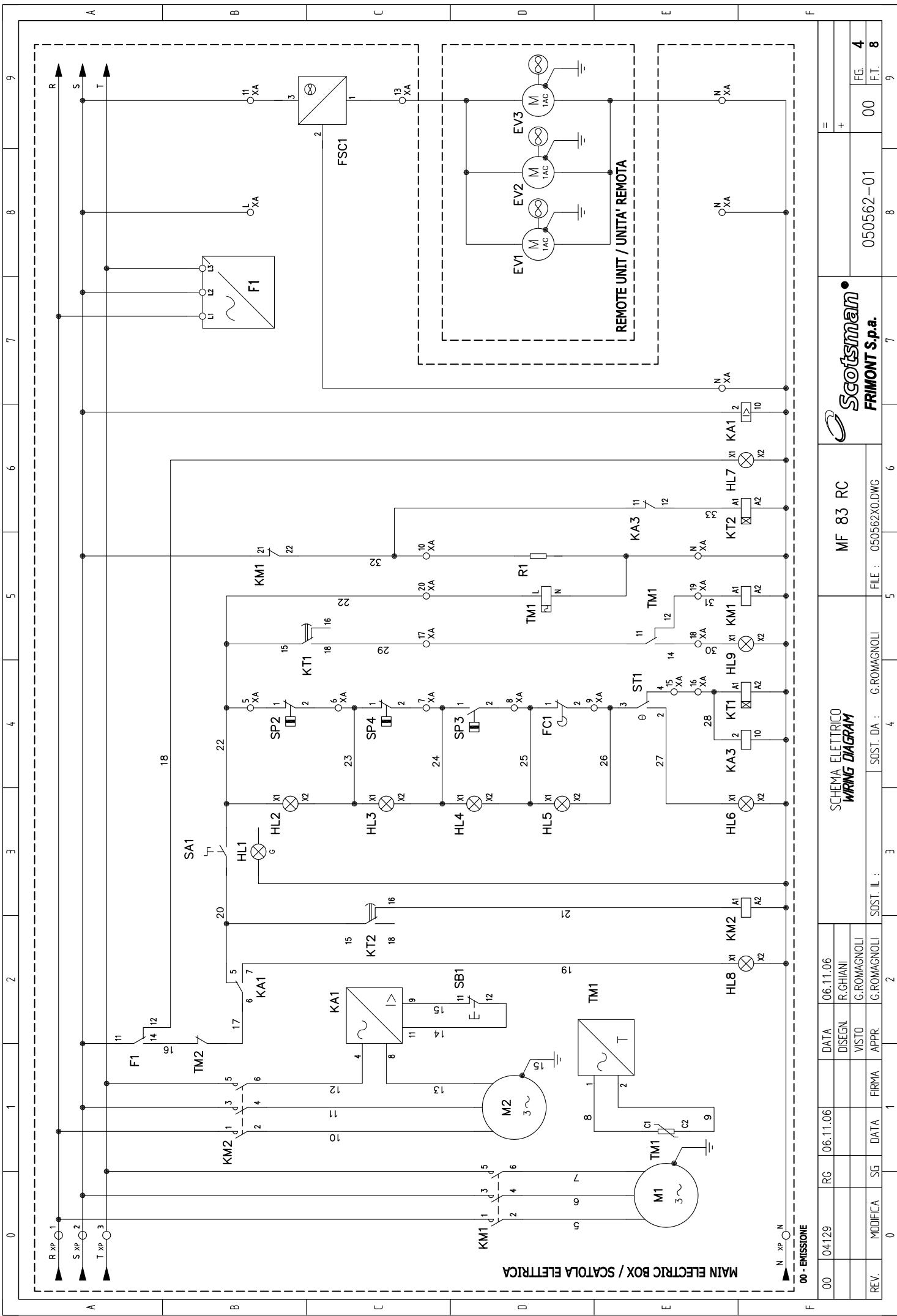




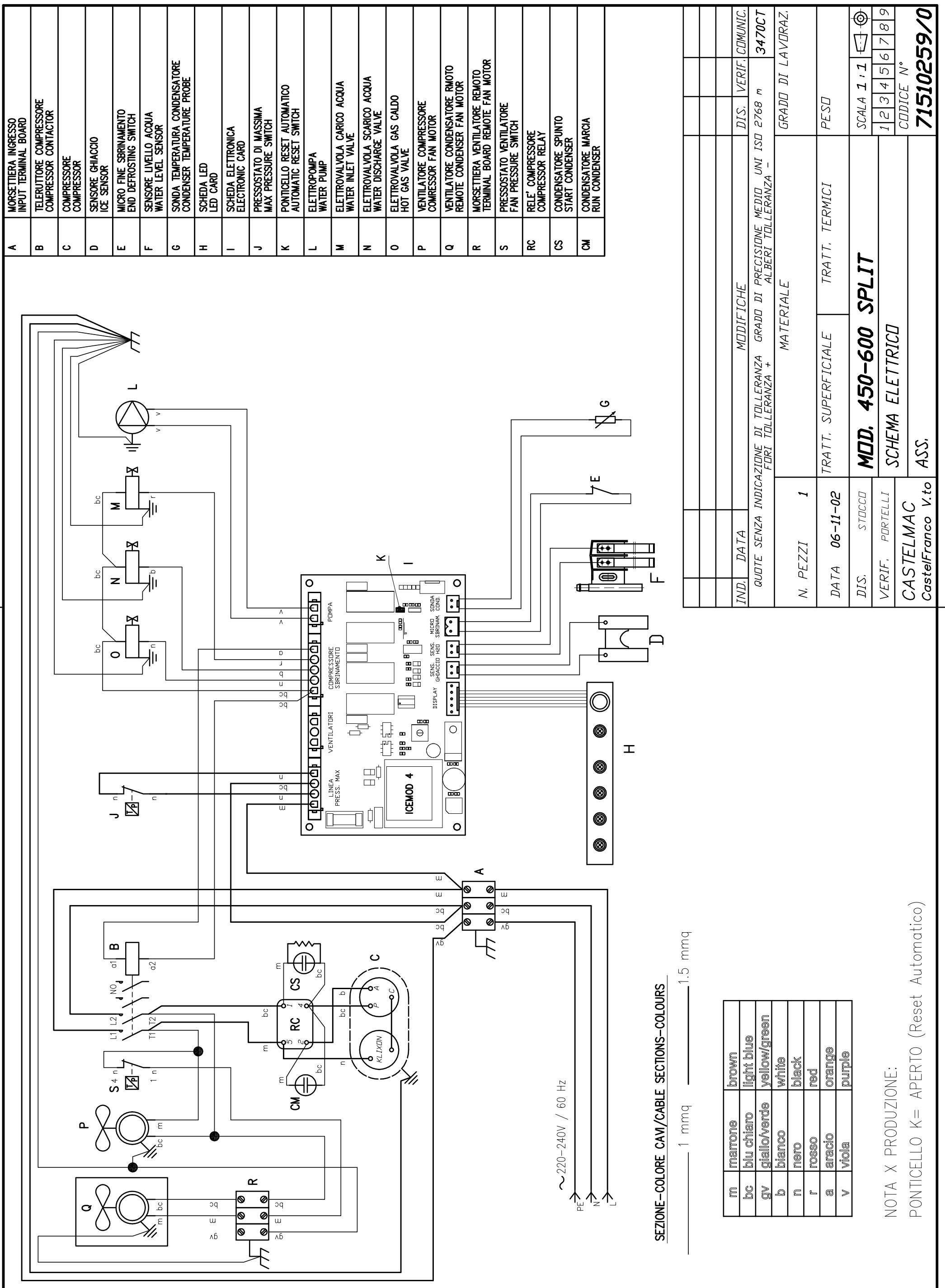








A		B		C		D		E		F	
Sim.\Sym.	Sigla\Item	Funzione\Use Type	Sim.\Sym.	Sigla\Item	Funzione\Use Type	Sim.\Sym.	Sigla\Item	Funzione\Use Type	Sim.\Sym.	Sigla\Item	Funzione\Use Type
	EV1	FAN motor Ventilatore		HL6	Bin full Magazzino pieno		M2	Drive motor Motoriduttore		R1	Crankcase heater Resistenza compressore
	EV2	FAN motor Ventilatore		HL7	Wrong phase alarm Allarme sequenza fasi		SA1	Switch Interruttore		SB1	Reset push button Pulsante reset
	EV3	FAN motor Ventilatore		HL8	Current drive-motor alarm Allarme amperometrica motoriduttore		SP2	HI pressure control safety Pressostato sicurezza alta pressione		SP3	Water pressure control Controllo bassa pressione acqua
	F1	3-phase monitoring relay controllo sequenza fasi		HL9	Compressor thermal protector alarm Allarme protezione termica compressore		SP4	LOW pressure control Pressostato basa pressione		ST1	Thermostat Termostato
	FC1	Spout switch Interruttore bocchetta		KA1	Current drive-motor relay Relè amperometrico motoriduttore		TM1	Compressor thermal relay Relè protezione termica compressore		TM1	Compressor thermal protector Prottettore termico compressore
	FSC1	Fan Speed Fan Speed		KA3	Drive-motor start relay Relè anticipata motoriduttore		KT1	Compressor timer delay Ritardatore compressore		KT2	Drive-motor timer delay Ritardatore motoriduttore
		Power ON Macchina in funzione		KM1	Compressor contactor Teleruttore compressore		M1	Compressor Compressore			
	HL1	HI pressure alarm Allarme alta pressione		KM2	Drive-motor contactor Teleruttore motoriduttore						
	HL2	HI pressure alarm Allarme bassa pressione		KT1	Compressor timer delay Ritardatore compressore						
	HL3	LOW pressure alarm Allarme bassa pressione		KT2	Drive-motor timer delay Ritardatore motoriduttore						
	HL4	Water alarm Allarme mancanza acqua		M1	Compressor Compressore						
	HL5	Spout switch light Spia interruttore bocchetta									



PRESENTA DISEGNO CHE NON DEVE ESSERE RIPRODOTTO O TRASMESSO A TERZI SENZA AUTORIZZAZIONE
A TERMINI DI LEGGE LA "CASTELMAC" SI RISERVA LA PROPRIETÀ, ESCLUSIVA DEL

IND.	DATA	MODIFICA	QUOTE SENZA INDICAZIONE DI Tolleranza	GRADO DI PRECISIONE MEDIO UNI ISO 2768 m	DIS. VERIF. COMMUNIC.	3470CT	MATERIALE	GRADO DI LAVORAZ.
N. PEZZI	1							
DATA	06-11-02	TRATT. SUPERFICIALE	TRATT. TERMICI	PESO				
DIS.	STOCCO	MOD. 450-600 SPLIT	SCHEMA ELETTRICO		SCALA 1:1			
VERIF. PORTELLI	CASTELMAC	ASS.	ASS.		1 2 3 4 5 6 7 8 9	CODICE N°	71510259/0	