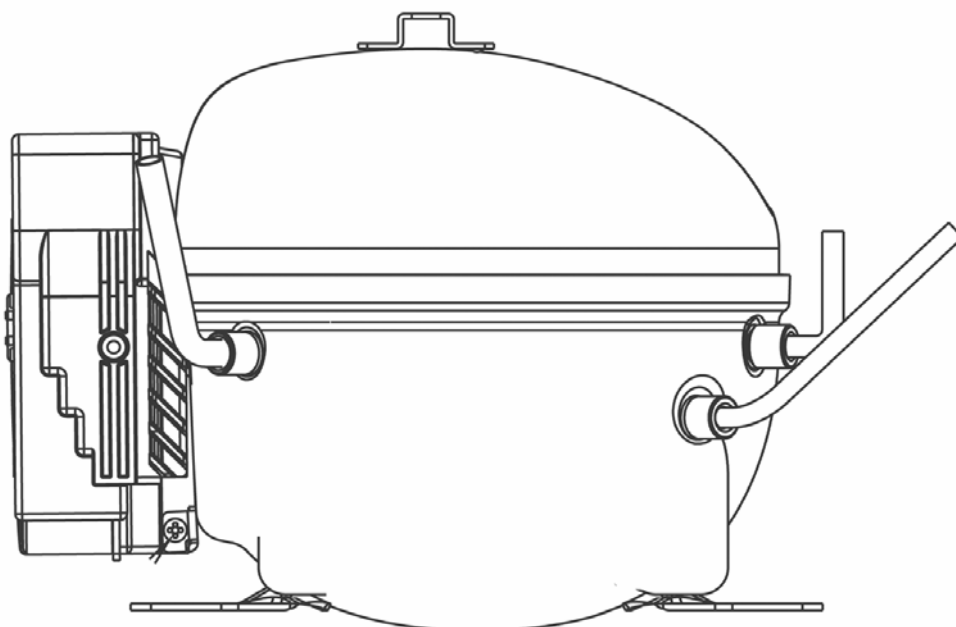




USE ONLY WITH EMBRACO
CONTROL UNIT
ELECTRONICALLY PROTECTED

WARNING: Permanent damage will occur if
compressor is directly connected to AC line



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VEM
Compressor
with VCC
electronic
control
in autologic
mode

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1. Introduction

This manual describes the **VEM** electronic compressors with VCC electronic control in autologic mode.

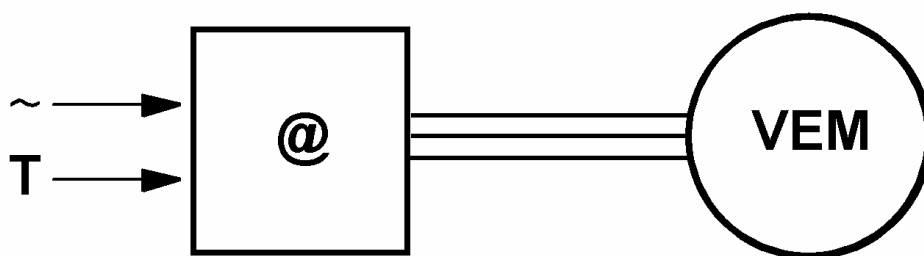
The autologic mode is an algorithm developed to automatically select the best speed of the compressor according to the working conditions of the refrigerator.

The new series of compressors called **VEM** belongs to a typology of compressors controlled by a sophisticated electronic control called VCC (Variable Capacity Compressor).

The **VEM** compressors contribute to a reasonable reduction of the electrical consumption and optimize the performances of the appliances thanks to the variable speed set by the control electronic board.

The compressors are identified with the abbreviation **VEM** and must be powered only through the suitable electronic board **@** (refer to the specific spare part list for the model!). Otherwise the compressor is irreparably damaged!

The control electronic board of the compressor is powered at a rated power ~ of the appliance and receives the cut-in and cut-out signal from the thermostat **T** of the appliance.



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~ = rated power supply;
T = cut-in and cut-out of the thermostat;
@ = control electronic board compressor;
VEM = compressor.

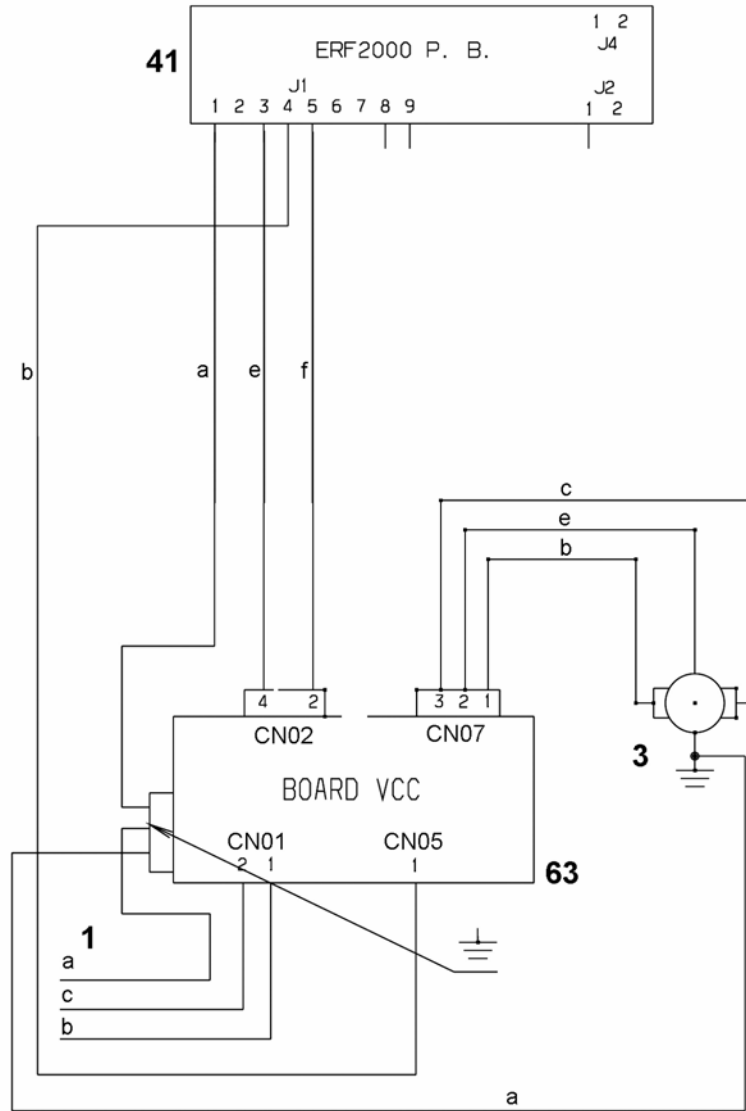
The **FSD** compressors do not feature a junction box, PTC and a motor protector since the control electronic board has the function of starting and protecting the compressor.

The control electronic board of the compressor, moreover, is provided with some internal automatic protections which avoid any damage of the compressor in case of malfunctioning.

In these conditions, the control electronic board switches the compressor off for 5 minutes before starting it again.

2. Wiring diagram

(Refer to the specific diagram of the model!)



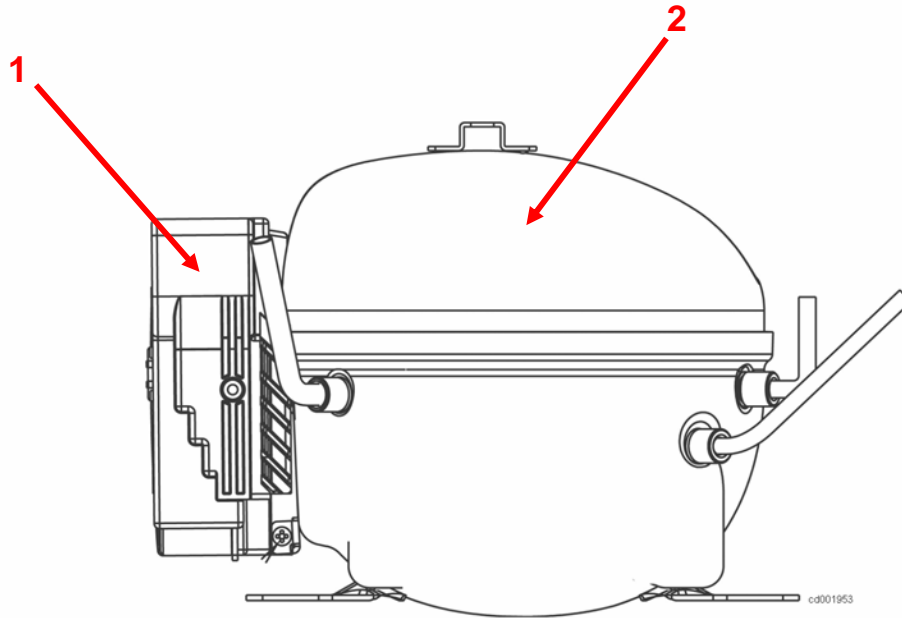
- 1. power cable;
- 3. compressor;
- 41. power board;
- 63. control board of VCC compressor;

- a. yellow-green
- b. brown
- c. blue
- d. white
- e. black
- f. grey



Warning: The power supply of the control board is **NOT** interrupted if the appliance is switched off with the ON/OFF button.
 Before operating on the electrical components **ALWAYS** unplug the appliance.

3. Components of compressor assembly + control board



1. VCC control electronic;
2. VEM electronic compressor;



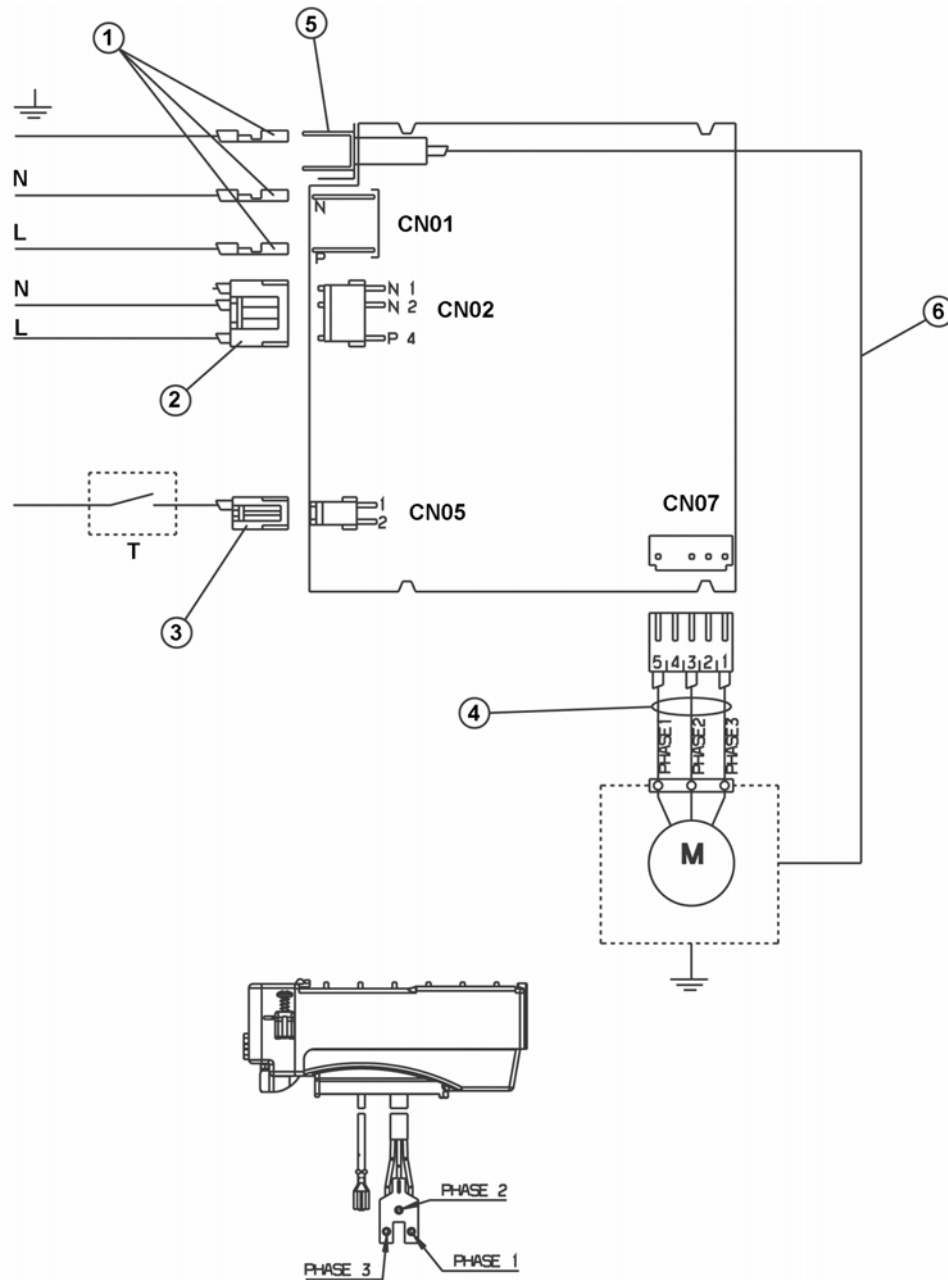
Warning: The power supply of the control board is **NOT** interrupted if the appliance is switched off with the ON/OFF button.
Before operating on the electrical components ALWAYS unplug the appliance.

4. Connection diagram

4.1. VCC Control board

Inside the cable cover of the VCC control electronic board there are the following multiple connectors:

- **CN01** (with 2 terminals) for the power supply cable of the control board;
- **CN02** (with 4 terminals) for the power supply cable of the power board;
- **CN05** (with 2 terminals) for the cable of the signal from the thermostat/electronic board;
- **CN07** (with 3 terminals) for the connection cable of control board and compressor.



Key:

- 1** = power supply cable of control board;
- 2** = power supply cable of power board;
- 3** = cable of the thermostat/electronic board signal;
- 4** = connection cable of control board and electronic compressor;
- 5** = earth terminal;
- 6** = earth cable;
- L** = line;
- N** = neutral;
- T** = thermostat/electronic board;
- PHASE 1** = phase 1;
- PHASE 2** = phase 2;
- PHASE 3** = phase 3.



Warning : a wrong connection causes irreparable damages to the compressor!
Therefore, the earth cable must be connected and the phase order must be followed.

5. Precautions

The VEM compressor must **never** be connected directly to the supply line because it would be irreparably damaged.

The operation of the FSD compressor must be controlled **only** by the VCC control electronic board.

Connect the earth cable to the earth contact of the compressor follow the phase order.

Never measure the output voltage from the VCC control electronic board (or at the ends of the VEM compressor) because the compressor would be irreparably damaged.

Utilize **only** the thermostat indicated in the spare part list of the specific model or one equivalent as long as it does not feature the cross-ambient heating element. The use of a thermostat with cross-ambient heating element causes the continuous operation of the VEM compressor.

6. Checking procedures

A procedure sequence which enables to check the ohmic resistance of the compressor motor windings is shown below:

1. Disconnect the connector from the compressor.
2. Measure the resistance value between the motor phases (between the compressor contacts). If the values are very different from those indicated in the technical data of the compressor, replace the compressor.
3. Measure the isolation of the earth windings. In case of faulty isolation, replace the compressor.

7. REVISIONS

REVISION	DATE	DESCRIPTION
00	02/2008	Document release