Installer/ user manual



# CRISTAL FM1-FM2

## Rack oven


**Translated manual**
**Language: ENGLISH**
**Code: AF220045170-17**
**Date: 09/2016**

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**Ladies and gentlemen**,



You have just purchased one of our Pavailler products.
We wish to thank you for the confidence you have placed in our products.
These products are the result of extensive studies and testing to ensure your full satisfaction.
Our sales and after sales teams are always available to help you install, start up and use the product under optimum conditions.

## WARRANTY CONDITIONS ON THE FRENCH MARKET

This document contains the conditions and recommendations for installing, using and maintaining our equipment.
Pavailler equipment has a one year warranty for parts and labour.
Certain works requiring the intervention of a specialised technician may only be performed by Pavailler's after sales service or one of our authorised dealers.
Any modifications to the equipment and non-observance of the recommendations of use stated above shall release Pavailler from all liability and make the warranty null and void.
For further information, please contact our technicians or authorised dealers.
In a continuous quest for improvements S.E.B.P. reserves the right to modify the technical characteristics of its products without prior notice. Dimensions, visuals and weights are given by way of illustration.

## PLEASE READ CAREFULLY BEFORE USING THE EQUIPMENT

- The customer must make sure that the premises where the equipment is to be installed have a suitable capacity, in compliance with the applicable rules and standards.
- There must be no flour accumulations in the vicinity of the oven.

## LIMITING FLOUR DUST EMISSIONS

Flour, the main ingredient in dough, is also considered the main cause of respiratory diseases in the baking sector, such as colds and asthma.
In fact, dust developing during flour processing are one of the causes for different forms of colds or, more seriously, different types of asthma.
Below is a list of recommendations on how to limit flour dust formation in the bakery as much as possible:

• Use 25 kg bags instead of 50 kg bags and empty them in several steps.
• Place the open end of the bag on the bottom of the mixer bowl and pull it up gently, holding the other end.
• Reduce the height from which the flour drops as much as possible.
• Do not shake the empty bag, close it and gently roll it up to fold it.
• Add the flour into the mixer bowl after the water (never the other way round).
• Distribute the flour manually or by means of a sieve without throwing it.
• Clean the worktop with the dough cutter, do not use a brush or compressed air (air gun).
• Separate work clothes from normal clothes.
• Do not shake out or brush work clothes, wash them.
• Avoid draughts.
• When using the mixer stick to the programmed operation in first gear during the first two minutes of the mixing cycle.
This is when the most flour dust is emitted.
• When using the mixer shift back into first gear each time flour is added.
• It is preferable to use a vacuum cleaner with a dust filter and to perform the cleaning operations in damp conditions by using a scraper instead of brushes or rags.
• Wear a protective mask during the operations generating the most dust: loading the mixer bowl, using the hydraulic divider, flouring the dough pieces, etc.
• Use equipment specially designed for reducing dust emissions: mixer with anti-dust lid, hydraulic divider with anti-adhesion treatment, etc.

Other volatile substances can be harmful or dangerous to the operator's health, please consult the information given by the raw material supplier.

## ENVIRONMENTAL PROTECTION

In compliance with the current regulations this symbol indicates that the product may not be disposed of with household waste at the end of its service life.
To protect the environment the product must be taken to a collection point suitable for its treatment, valorisation and recycling.
The user thus helps to preserve natural resources and to protect health.

# TABLE OF CONTENTS

# 1. IMPORTANT SAFETY INSTRUCTIONS

The oven is intended for professional use and must be operated by qualified personnel only.

The oven is exclusively designed for baking bread, confectionery and Viennese pastry. It should never be used for any other applications.

Never use flammable or explosive products inside the oven (e.g.: never clean the oven with flammable products; do not insert baking trays, pans or racks which still contain a flammable cleaning agent.)

The oven must be installed according to current regulations and standards.
The gas, oil, water and voltage supply as well as the smoke and steam evacuation systems and their connections have to be carried out and maintained by qualified professionals in compliance with current regulations and standards (see section on installation). The cost of this work is borne by the customer.

The installation site of the oven must have appropriately sized fresh air inlets and contaminated air outlets (paid for by the customer) (see section “fresh air intake”).

For oil or gas fired ovens it is forbidden to install additional mechanical ventilation devices (e.g.: window fan, extractor hood):
- in the room where the oven is installed
- in a separate room if this ventilation may lead to depression sufficient to cause a backflow of combustion fumes.

Do not use any burners other than the recommended models.

If a different type of gas is used, contact a qualified technician (see section “Converting the oven for use with a different type of gas”).

# 2. GENERAL CHARACTERISTICS

## 2.1. DESCRIPTION

– CRISTAL ovens are rotary rack ovens that are compatible with:
 - without squirrel cage: Pavailler racks
 - with squirrel cage: any type of racks with a max. height of 1640 mm for M1 ovens and 1820 mm for M2 ovens.

– They operate on gas, oil with heat exchanger or electricity.

– Maximum oven capacity is 300 kg (rack included) without squirrel cage, and 225 kg (rack included) with squirrel cage.

– The oven is entirely made of stainless steel, including the steam exhaust fan - three stainless steel impellers – heat exchanger in refractory stainless steel.

– The front-mounted control panel features all the oven controls including the timer and baking temperature display.

– Steam injection time is adjustable with a timer.

– The baking chamber neon tubes light up automatically when the oven starts.

Reinforced insulation due to:
. pre-insulated components at the factory
. systematic elimination of all thermal bridges
. door triple glazing
. door tightness with high-temperature gasket on all four sides

– All electric links are made with connectors
– All motors are protected with a thermal overload switch.
– Electric DAMPER controlled from the oven front (closes automatically when the oven stops).
– Maximum oven safety with:

. cold walls including the door, the door frame and glazing
. patented integrated safety system: double-acting door unlocking:
- **first step**: half-opening of door and automatic steam exhaust (hood integrated into the oven) - delayed and adjustable extraction time.
- **second step**: full opening of door when the rack reaches its final unloading position.



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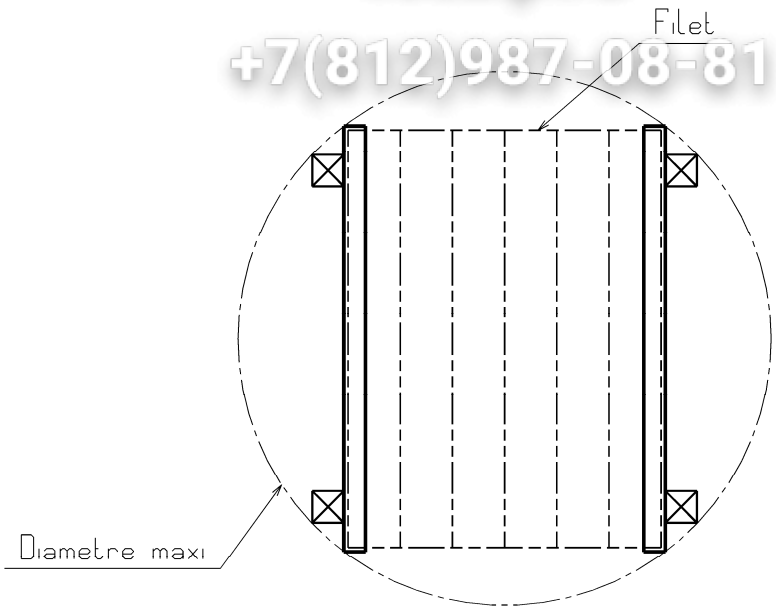
**Baking chamber usable dimensions:**

M1: diameter 930 mm - M2: diameter 1130 mm

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**Net weights:**

**M1** Oil/Gas = 900 kg - Electric = 825 kg
**M2** Oil/Gas = 1100 kg - Electric = 1025 kg

**Available voltages**

- 208 to 240V 50/60 Hz
- 380 to 415V 50/60 Hz

## 2.2. CONFORMITY DECLARATION

**Pavailler**

### CONFORMITY DECLARATION

Déclaration de conformité — Dichiarazione di conformita'
Konformitäts Erklärung — Declaracion de conformidad

CE

**The Manufacturer :**
- Le fabricant - il costruttore
- Der Hersteller - El fabricante

**SEBP PAVAILLER**
**BP 54 - Rue Benoit Frachon**
**F - 26802 PORTES LES VALENCE**

**Declares under its only responsability that the brand new product here under described :**
- déclare, sous sa seule responsabilité, que le matériel neuf désigné ci-après :
- dichiara, sotto la propria esclusiva responsabilità che il prodotto, nuovo di fabbrica :
- erklärt, in seiner alleinigen Verantwortung die Konformität der nachfolgend aufgeführt Ware :
- declara bajo su propia responsabilidad que el material descrito a continuación :

**Machine for bakeries/confectioners**
Machine pour boulangerie/pâtisserie - Macchina per panificio/pasticceria - Machine für Bäckerei/Feinbäckerei - Máquina para panadería/pastelería

**Model :** - Modèle - Modello - Modell - Modelo :
**Rack oven**
Four à chariots - - - Rack oven

**Type :** **Four à chariot**
- Type : - Tipo : - Typ : - Tipo :

**Code :**
- Code : - Codice : - Code : - Código :

**Serial**
- N° de série : - N° di serie : - Seriennr : - Número de serie :

**Year of manufacture :**
- Année de fabrication : - Anno di costruzione : - Baujahr : - Año de fabricación :

**is compliant with the following European Directives :**
- est conforme aux directives européennes suivantes :
- mit den folgenden europäischen Richtlinien konform ist :
- E' conforme alle seguenti direttive europee :
- está conforme con las siguientes normas europeas :

**2006/42/CE MACHINE DIRECTIVE**
2006/42/CE Directive machines
2006/42/CE Maschinenrichtlinie
2006/42/CE Direttiva macchine
2006/42/CE Directiva de Máquinas

**2004/108/CE DIRECTIVE CONCERNING THE ELECTROMAGNETIC COMPATIBILITY**
2004/108/CE Directive compatibilité électromagnétique
2004/108/CE elektromagnetische Kompatibilitäts-Richtlinien
2004/108/CE Direttiva Compatibilità Elettromagnetica
2004/108/CE Directiva compatibilidad electromagnética

**2009/142/CE GAS DIRECTIVE when gas fired.**
In this case, the notified body is **CERTIGAZ, 8 rue de l' Hotel de Ville - 92200 Neuilly sur Seine - FRANCE.** His accreditation number is **1312** and the number of the certificate is . - 2009/142/CE Directive gaz quand l'énergie est le gaz. Dans ce cas, l'organisme notifié est **CERTIGAZ, 8 rue de l' Hotel de Ville - 92200 Neuilly sur Seine - FRANCE.** Son numéro d'accréditation est le **1312** et le numéro du certificat est le . - 2009/142/CE Direttiva gas qualora la fonte di energia sia il gas. In questo caso l'organismo notificato è **CERTIGAZ, 8 rue de l' Hotel de Ville - 92200 Neuilly sur Seine - FRANCE.** Il suo numero di accreditamento è **1312** ed il numero di certificato è . - 2009/142/CE Gas-Richtlinie wenn Gas Energie. Dies wird durch **CERTIGAZ, 8 rue de l' Hotel de Ville - 92200 Neuilly sur Seine - FRANCE,** Akkreditierung Nr **1312,** mit dem Zertifikat bestätigt. - 2009/142/CE Directiva gas cuando la energía es el gas. En este caso, el organismo notificado es **CERTIGAZ, 8 rue de l' Hotel de Ville - 92200 Neuilly sur Seine - FRANCE.** Su número de acreditación es el **1312** y el número del certificado es el .

**REGULATION (EC) 1935/2004 of 27 october 2004**
**Under normal and foreseeable conditions of use not bringing about an unacceptable change in the composition or deterioration of the organoleptic characteristics of bread dough, the above mentioned machine is authorised for food contact in the bakery field.**
- Règlement (CE) 1935/2004 du 27 octobre 2004
La machine référencée ci-dessus, dans les conditions normales et prévisibles d'emploi n'entraînant aucune modification inacceptable de la composition ou une altération des caractères organoleptiques de la pâte à pain, est apte au contact alimentaire en boulangerie.
- Verordnung (EG) 1935/2004 vom 27 October 2004
Unter normalen oder vorhersehbaren Verwendungsbedingungen, welche keine unvertretbare Veränderung der Zusammensetzung oder eine Beeinträchtigung der organoleptischen Eigenschaften des Brotteigs herbeiführen, ist die oben genannte maschine für Lebensmittelkontakt im Bäckereibereich zugelassen.
- Regolamento (CE) 1935/2004 del 27 ottobre 2004
La machina in oggetto, nelle normali e prevedibili condizioni d'impiego, non provoca alcuna modifica non accettabile della composizione o alterazione delle caratteristiche organolettiche della pasta di pane. E' adatto al contatto alimentare in panificazione.
- Reglamento (CE) 1935/2004 de 27 de octubre 2004
La máquina se hace referencia anteriormente, en condiciones normales y previsibles de empleo, sin alterar la composición o un deterioro inaceptable de las características organolépticas de la masa de pan, es adecuado para contacto con alimentos en cocción.

**it is certify as before mentioned :**
- et est certifié comme indiqué :
- und ist mit folgenden Produktzertifizierungen ausgestattet :
- Ed è dotato delle seguenti certificazioni di prodotto :
- y está certificado como sigue :

**Only Yves Adrien, plant manager, is authorized to build up the technical file of this product.**
Mr Yves Adrien, directeur d'établissement, est seul autorisé à constituer le dossier technique de ce produit.
Il Sig. Yves Adrien, direttore di stabilimento, è il solo autorizzato a costituire il fascicolo tecnico di questo prodotto.
Mr Yves Adrien, Ausstellungsdirektor, ist der Alleinberechtigte zur Bildung der technischen Akte dieses Produktes.
Sr Yves Adrien, director de establecimiento, es sólo autorizado a constituir el expediente técnico de este producto.

**Portes-lès-Valence, le**

**Yves ADRIEN**
Plant manager - Directeur d'établissement - Direttore di stabilimento - Betriebsleiter - Director de establecimiento

S.E.B.P. Société d'Equipement de Boulangerie-Pâtisserie
Société par Actions Simplifiée au capital de 2 850 000 €
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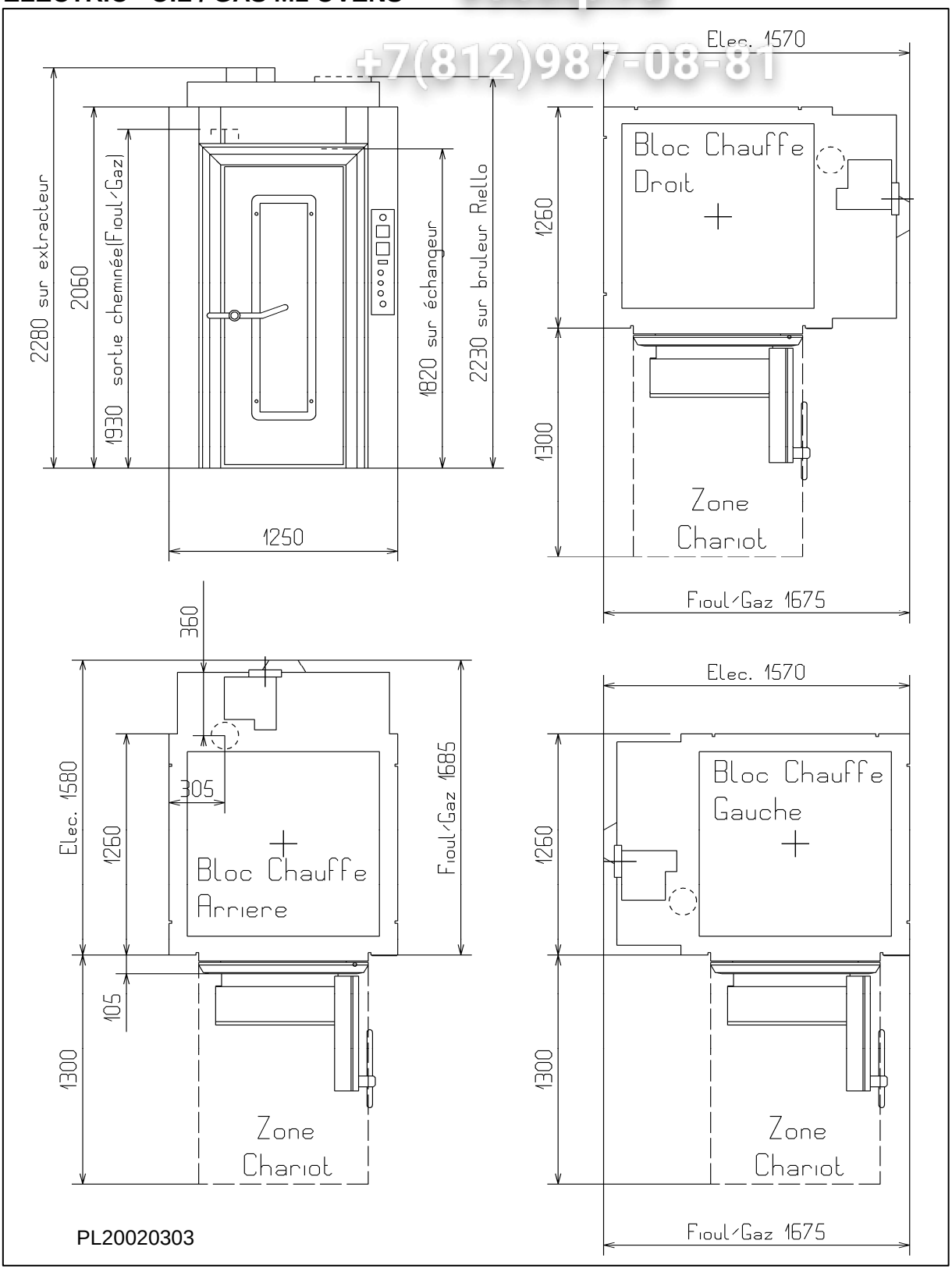
Tél. : +33 (0) 475 575 500 -Fax : +33 (0) 475 572 319 - Web site :http://www.pavailler.com
SIREN 478 695 034 - RCS Romans - N° TVA Intracommunautaire FR 17 478 695 034 - Code NAF: 2893 Z
Lieu de juridiction : Le tribunal compétent du ressort de notre siège social.

## 2.3. FOOTPRINT

### ELECTRIC - OIL / GAS M1 OVENS

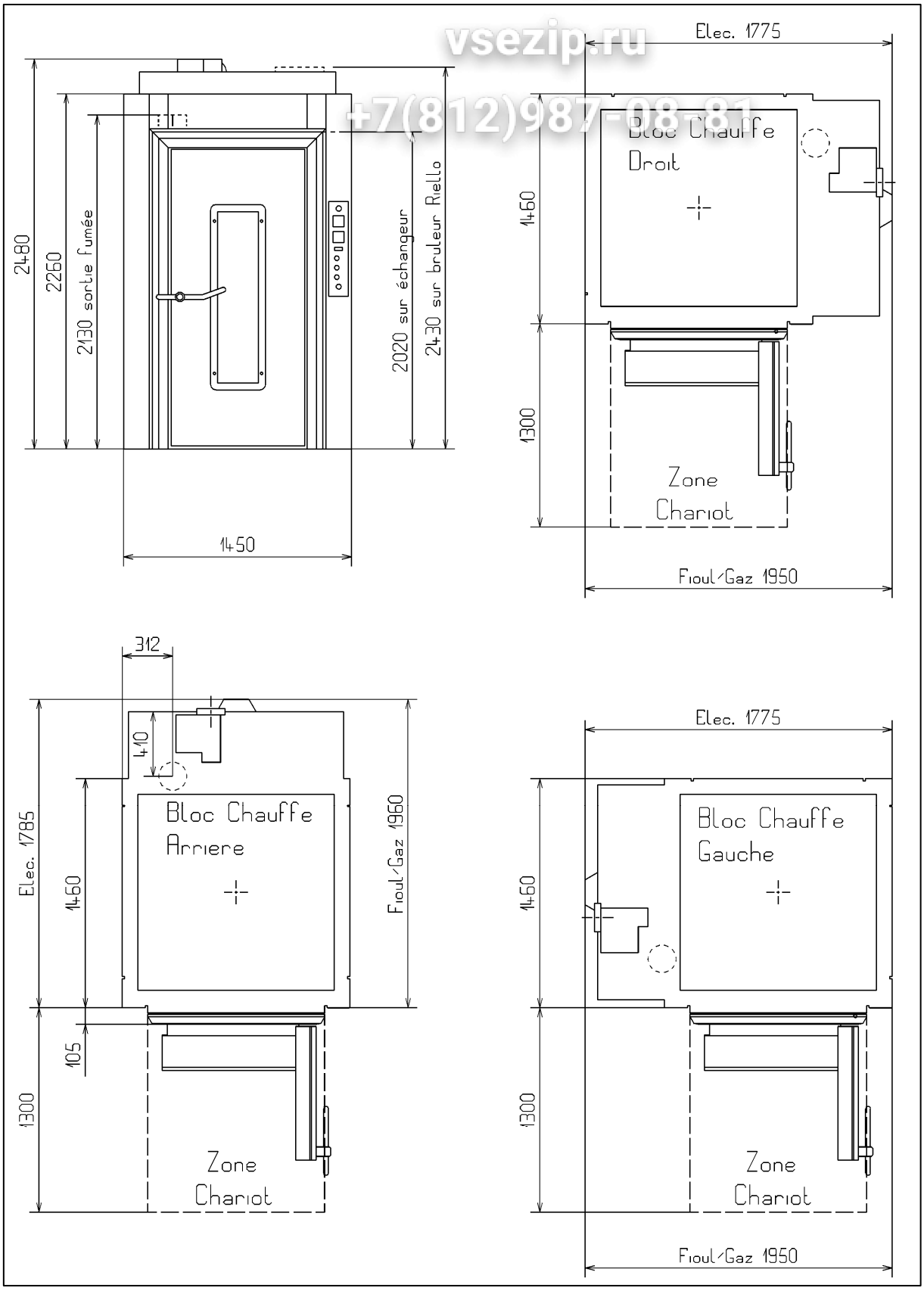



**HEATING UNIT REAR**

**HEATING UNIT LEFT OR RIGHT**

**ELECTRIC - OIL/GAS M2 ovens**

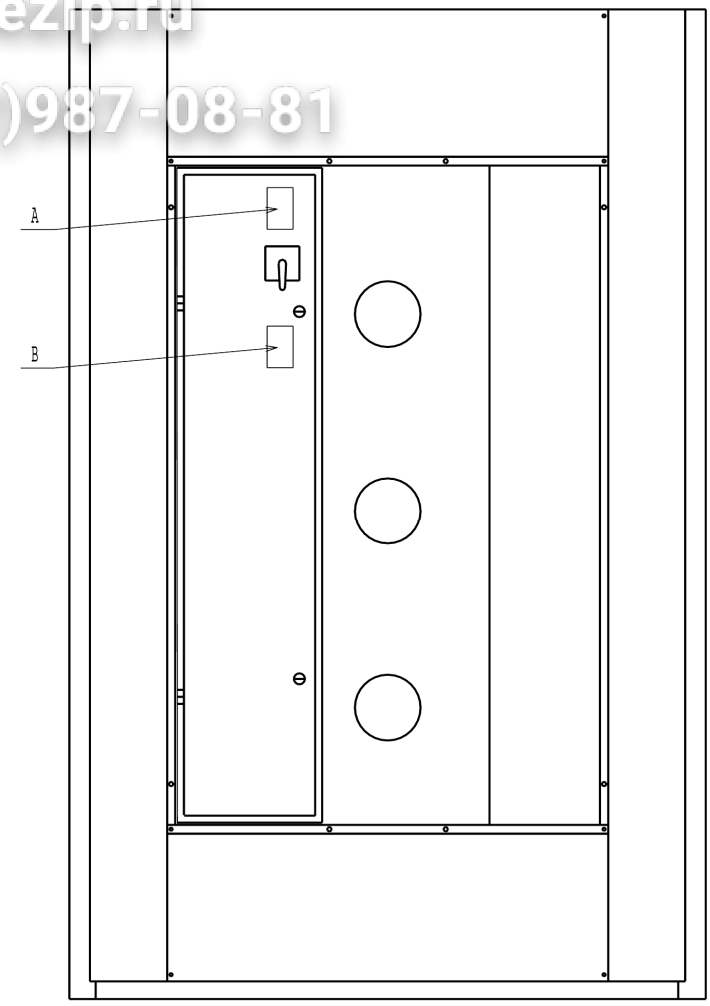





**HEATING UNIT REAR**

**HEATING UNIT LEFT OR RIGHT**

## 2.4. LOCATION OF DATA PLATES


A: Manufacturer's plate
B: Gas rating plate

For gas supply pressure and type of gas, please consult the manual given by the burner builder (manufacturer) and the burner rating plate.

## 2.5. HEAT RELEASE RATE

| Oven type reference | Rated heat release (Kw on Hi) |
|---|---|
| **M1** | 47 |
| **M2** | 77 |

# 3. INSTALLATION

## 3.1. SETUP

### 3.1.1 Dimensions and weights of the ballast components

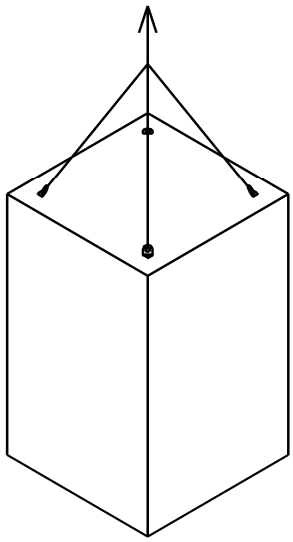
| | M1 | M2 |
|---|---|---|
| Assembled roof O/G | 990x990x530<br>106 kg | 1190x1190X530<br>120 kg |
| Heating unit O/G | 1950x990x530<br>140 kg | 2150x1190x600<br>170 kg |
| Electric heating unit | 1950x800x420<br>140 kg | 2150x1000x490<br>170kg |
| Door unit | 2060x970x350<br>150 kg | 2260x1170x350<br>186 kg |
| Panel | 1980x880x150<br>52 kg | 2180x1080x150<br>72 kg |

### 3.1.2 Check that the installation site can withstand the oven's weight.

**The floor should be even and level** (check with a spirit level gauge).

### 3.1.3 Handling

The assembled oven or assembled roof can be handled using slings, as per sketch.



CUBEFM1P



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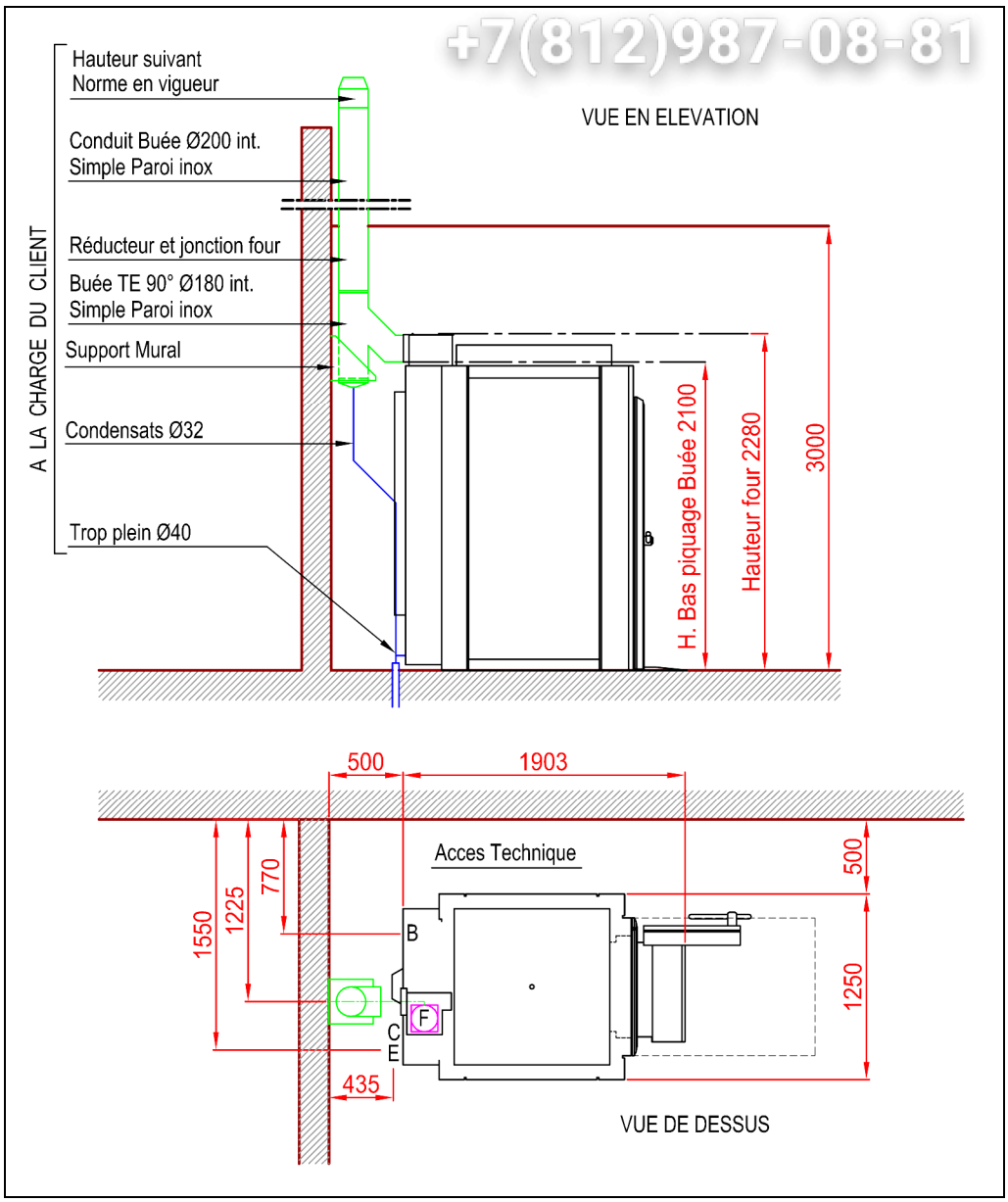
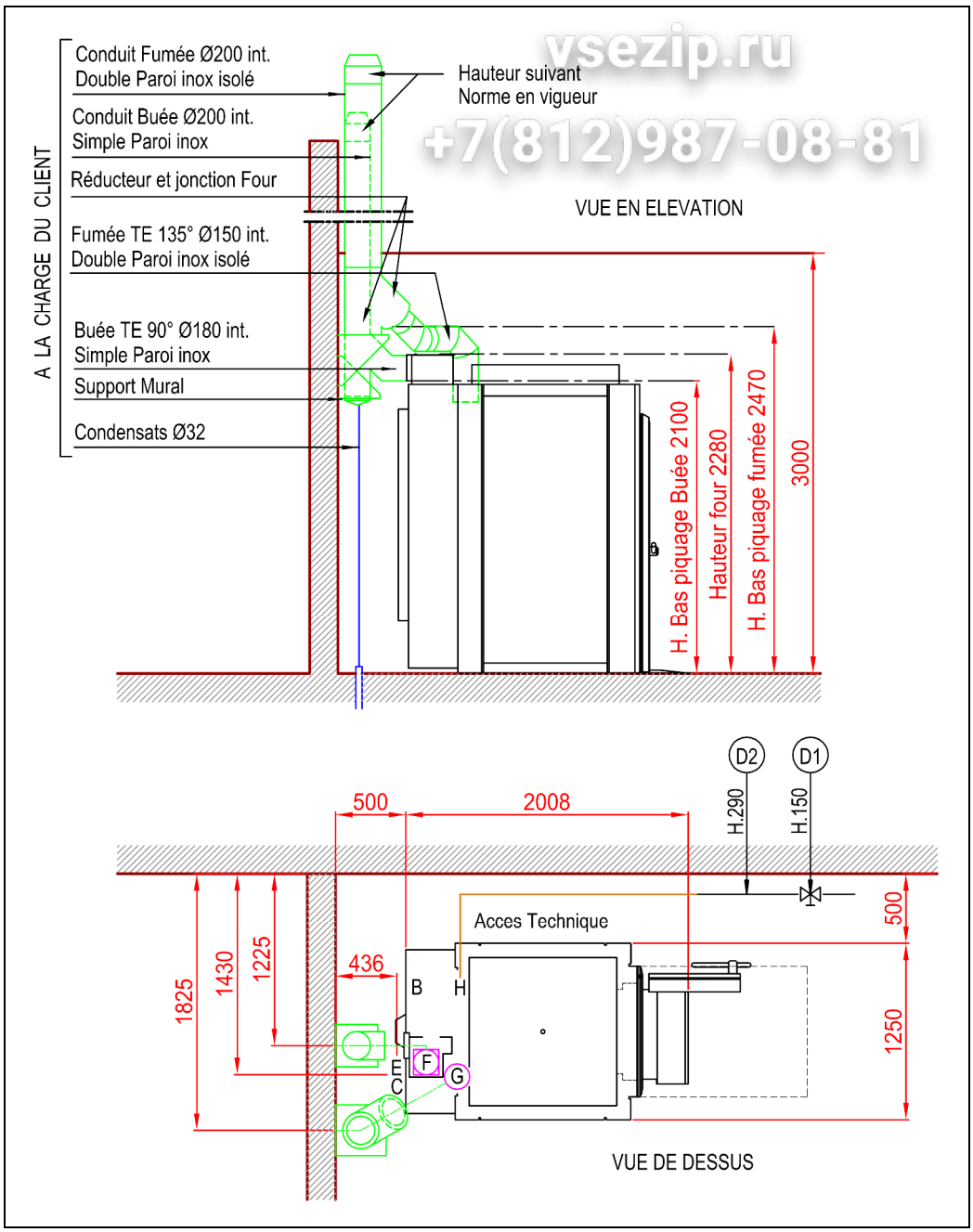
## Layout

## M1 ELECTRIC OVENS



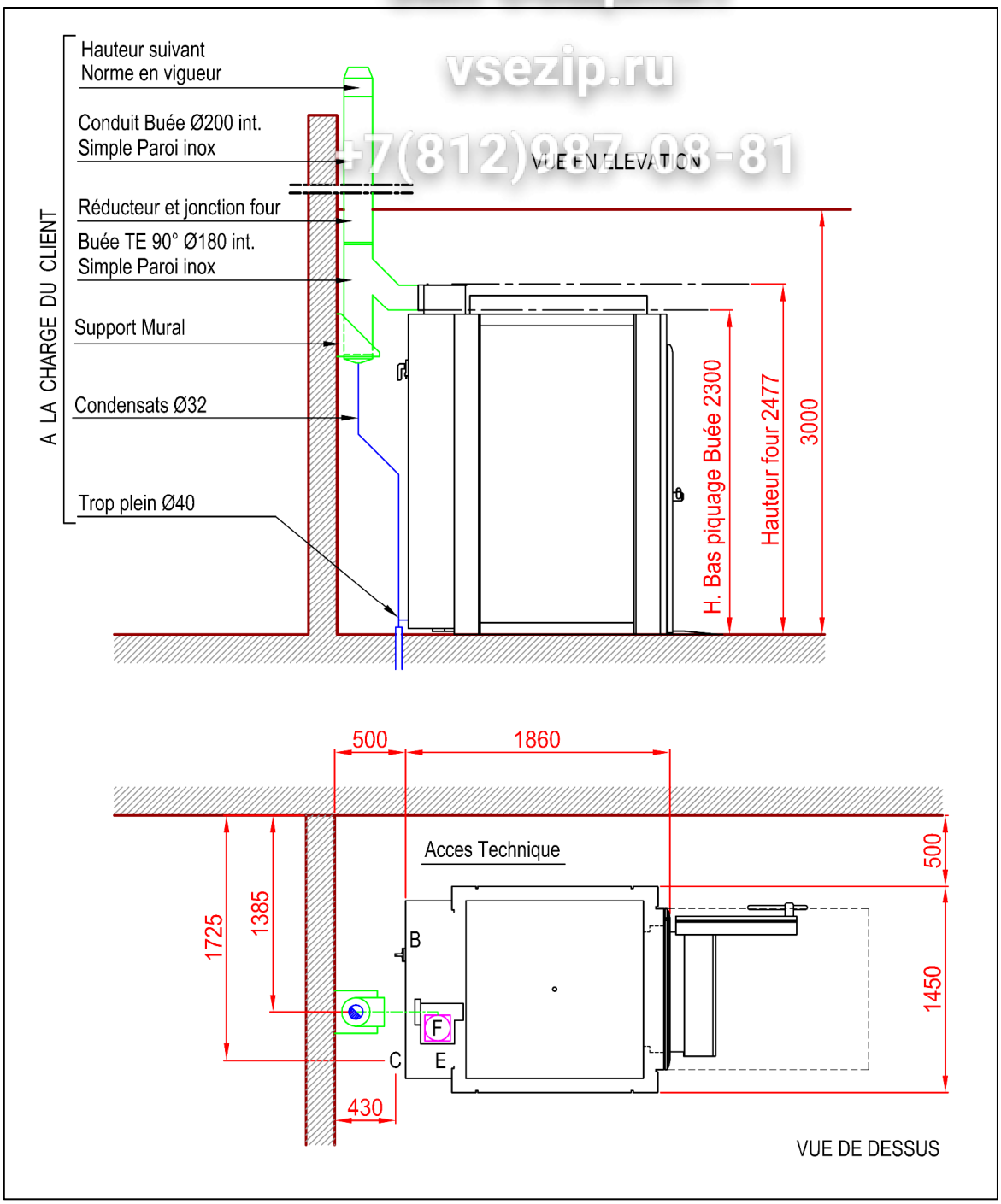

B: 400V 3 phases +Earth
C: Cold water inlet
E: Waste water drain ∅30 min.
F: Steam exhaust, horizontal ∅180mm outlet, towards the back of the oven

No flammable material within less than 16 cm from the 200°C steam exhaust.




B: 400V 3 phases +N+Earth
C: Cold water inlet
D1: Sectional valve
E: Waste water drain ∅30 min.
F: Steam exhaust, horizontal ∅180 mm outlet, towards the back of the oven
G: Smoke outlet, ∅150 mm vertical
H: Oil or gas

No flammable material within less than 16 cm from the 200°C steam exhaust.

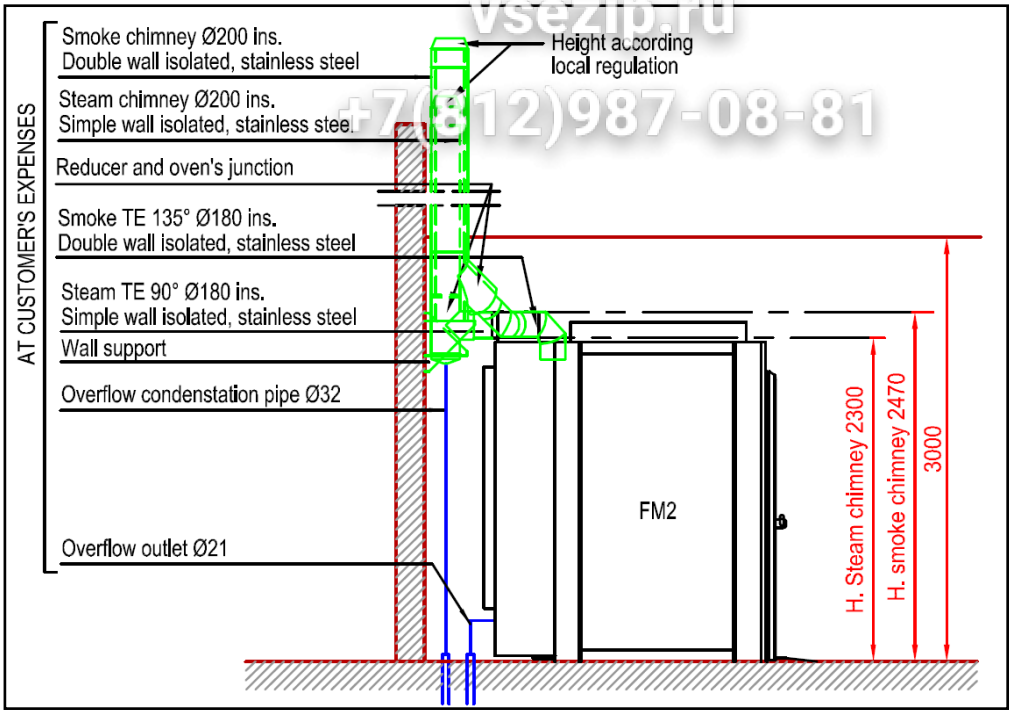


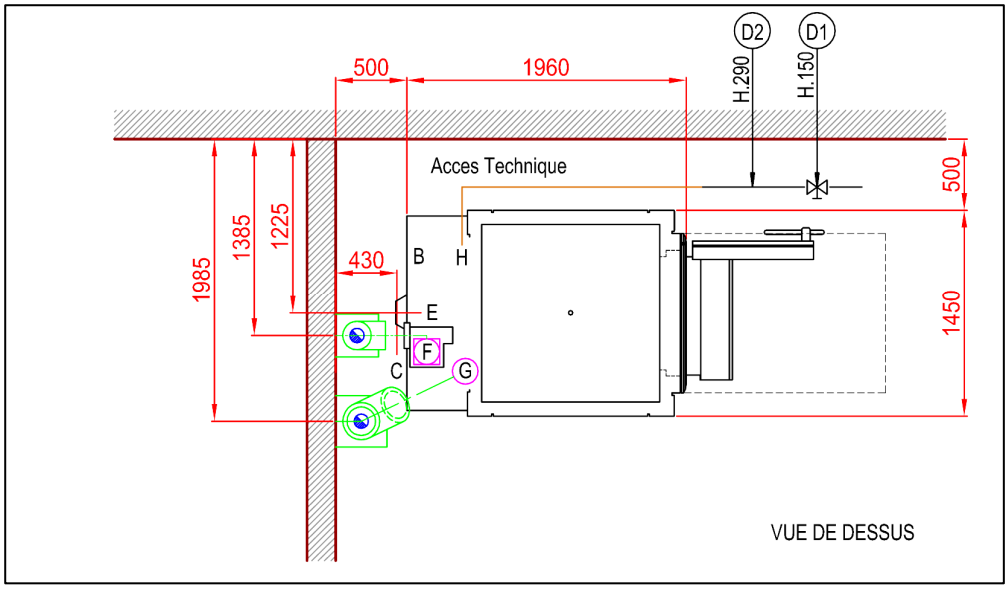

B: 400V 3 phases +Earth
C: Cold water inlet
E: Waste water drain ∅30 min.
F: Steam exhaust, horizontal ∅180 mm outlet, towards the back of the oven

No flammable material within less than 16 cm from the 200°C steam exhaust
.

## M2 OIL/GAS OVENS



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B: 400V 3 phases +N+Earth
C: Cold water inlet
D1: Sectional valve
E: Waste water drain ∅30 mini
F: Steam exhaust, horizontal ∅180 mm outlet, towards the back of the oven
G: Smoke outlet, ∅180 mm vertical
H: Oil or gas

No flammable material within less than 16 cm from the 500°C smoke and 200°C steam exhausts.

## 3.2. GAS CONNECTION AND BURNER ADJUSTMENT

### 3.2.1 Checks

Connect the oven to the gas supply via a shut-off valve allowing the oven to be isolated from the rest of the installation.

The gas supply piping must be sized so as to reduce line pressure losses: its diameter must be specified as appropriate for its path (length, number of elbows ...) and total oven power. It terminates with a 26/34 female fitting.

Check that the oven adjustments are appropriate for the type of gas and distributed pressure throughout the installation.

To check the oven's gas supply pressure, connect a water column manometer to the pressure nozzle on the burner valve unit.

### 3.2.2 Installing the gas burner

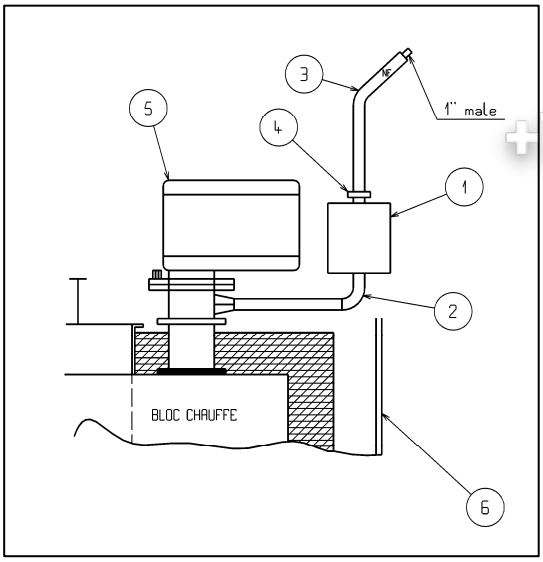
Approved burner models for CRISTAL ovens are as follows:

| NATURAL GAS (G20, 20 mbar or G25, 25 mbar) | | | |
|---|---|---|---|
| | **RIELLO** | **ELCO** | **CUENOD** |
| **M1** | 40 FS 10 | VG1.55 | FC6 GX 107/8 AT1 |
| **M2** | 40 FS 10 | VG1.85 | FC9 GX 107/8 AT1 |

| PROPANE (G31, 50 or 37 mbar) | | | |
|---|---|---|---|
| | **RIELLO** | **ELCO** | **CUENOD** |
| **M1** | 40 FS 10 + propane kit | VG1.55 | FC6 GX 107/8 AT1 |
| **M2** | 40 FS 10 + propane kit | VG1.85 | FC9 GX 107/8 AT1 |

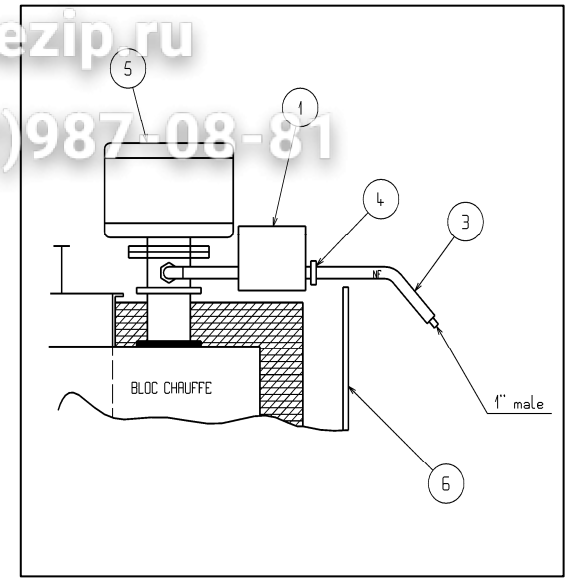
- Install the burner and the valve unit (as shown on the previous page).
- Check that the gas circuit is leak-tight using a gas leak detector.
- For RIELLO propane burners, replace the ∅ 2.2 nozzle with the ∅ 1.5 nozzle supplied for propane (see the manual enclosed).
- For CUENOD or ELCO propane burners, install the propane seal cap provided (see Burner manual).
- **When handling the burner, do not drop anything inside the furnace.**
- For any further information regarding the burner, refer to the manual that comes with it.

**M1 RIELLO burner**

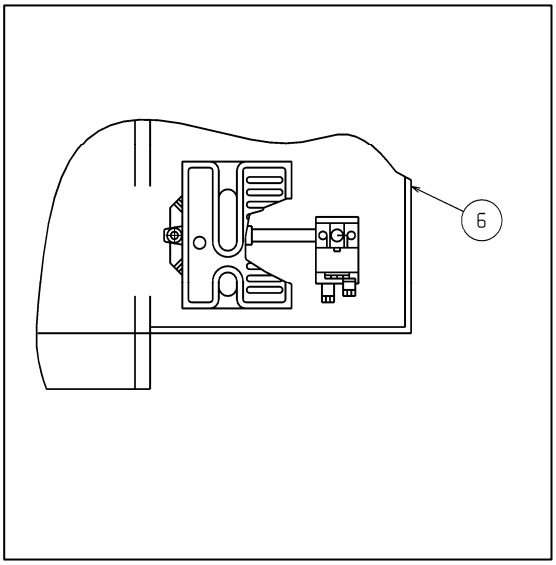



**Side view**

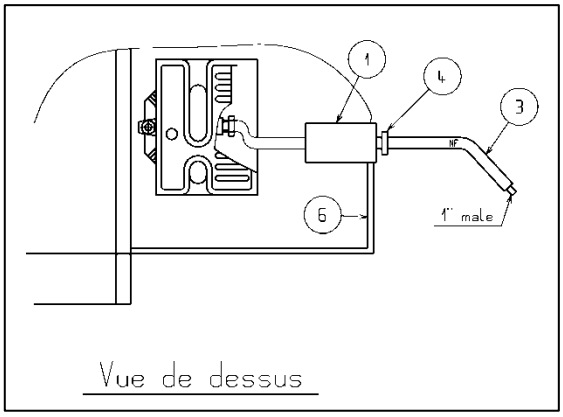
**M2 RIELLO burner**




**Side view**



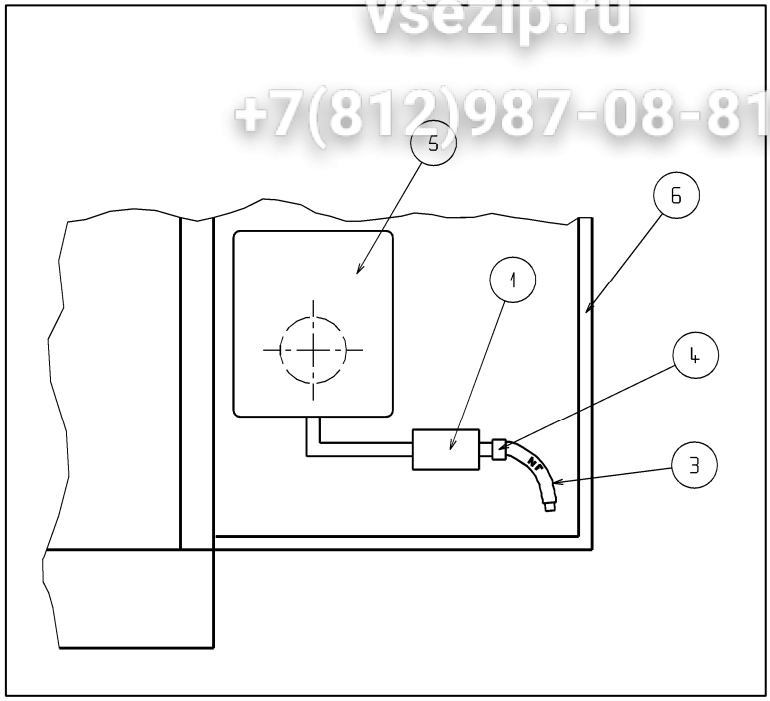

**Top view**




**Top view**

1. Valve unit
2. Normal elbow 20/27 MIF (31285)
3. NF hose 1 inch MMLG750
4. Reduction (31139)
5. Burner
6. Heating unit rear panel

**M1 and M2 CUENOD burners**
**M1 and M2 Elco burners**




**Top view**

The burner must protrude 3cm inside the combustion chamber.

### 3.2.3 Adjustments

– Adjustment of the combustion head (see burner manual)
. RIELLO burner for M1 ovens: no. 0
. RIELLO burner for M2 ovens: no. 2
. ELCO burner for M1 ovens: dimension Y = 30
. ELCO burner for M2 ovens: dimension Y = 32
. CUENOD burner for M1 ovens: dimension Y = 30
. CUENOD burner for M2 ovens: dimension Y = 32

– Adjustment of electrodes (see burner manual).

– Check that the valve unit inlet pressure matches the specifications in the table below:

| | |
|---|---|
| Natural gas Lacq Group H-G20 | 20 mbar |
| Natural gas Holland Group L-G25 | 25 mbar |
| Propane gas G31 | 50-37 mbar |

– Adjustment of the gas flow, according to the table

| Oven reference | Rated heat release (Kw sur HI) | Natural gas G20 - 20 mbar flow (L/min) at 15°C, 1013 mbar | Natural gas G25 - 25 mbar flow (L/min) at 15°C, 1013 mbar | Propane gas 50 - 37 - 30 mbar flow (L/min) at 15°C, 1013 mbar | Propane gas 50-37-30 mbar flow (g/min) at 15°C, 1013 mbar |
|---|---|---|---|---|---|
| **M1** | 47 | 80 | 92 | 31 | 58 |
| **M2** | 77 | 136 | 158 | 53 | 99 |

– Adjustment of the air damper for efficient combustion (see burner manual)

| | M1 | M2 |
|---|---|---|
| **RIELLO** | Rep. 2.5 | Rep. 4 |
| **ELCO** | Rep 14 | Rep.12 |
| **CUENOD** | Rep. 18 | Rep.12 |

Figures indicated are for basic adjustments. They should be adapted in accordance with combustion test results.

– Adjustment of the air pressure switch: see manual

## 3.3. ELECTRICAL CONNECTIONS



### 3.3.1 Table of amperages

| Frequencies | Voltage | M1 Gas/Oil | M1 Electric | M2 Gas/Oil | M2 Electric |
|---|---|---|---|---|---|
| 50Hz | 220V | 7 A | 104 A | 10A | 164 A |
| | 230V | 7 A | 109 A | 10 A | 172 A |
| | 380V | 4 A | 60 A | 6 A | 94 A |
| | 400V | 4 A | 63 A | 6 A | 99 A |
| | 415V | 4 A | 65 A | 6 A | 103 A |
| 60Hz | 208V | 10 A | 101 A | 14 A | 157 A |
| | 220V | 10 A | 106 A | 14 A | 166 A |
| | 230V | 10 A | 112 A | 14 A | 175 A |
| | 400 | 6 A | 64 A | 8 A | 101 A |
| | 415 | 6 A | 67 A | 8 A | 104 A |

### 3.3.2 Power ratings table

| Frequencies | Voltage | M1 Gas/Oil | M1 Electric | M2 Gas/Oil | M2 Electric |
|---|---|---|---|---|---|
| 50Hz | 220V-380V | 2.5 kW | 39.5 kW | 4 kW | 62.5 kW |
| | 230V-400V | 2.5 kW | 43.5 kW | 4 kW | 68.5 kW |
| | 415V | 2.5 kW | 47 kW | 4 kW | 74 kW |
| 60Hz | 208V | 3.5 kW | 36.5 kW | 5 kW | 56.5 kW |
| | 220V-380V | 3.5 kW | 40.5 kW | 5 kW | 63.5 kW |
| | 230V-400V | 3.5 kW | 44.5 kW | 5 kW | 69.5 kW |
| | 415 | 3.5 kW | 48 kW | 5 kW | 75 kW |

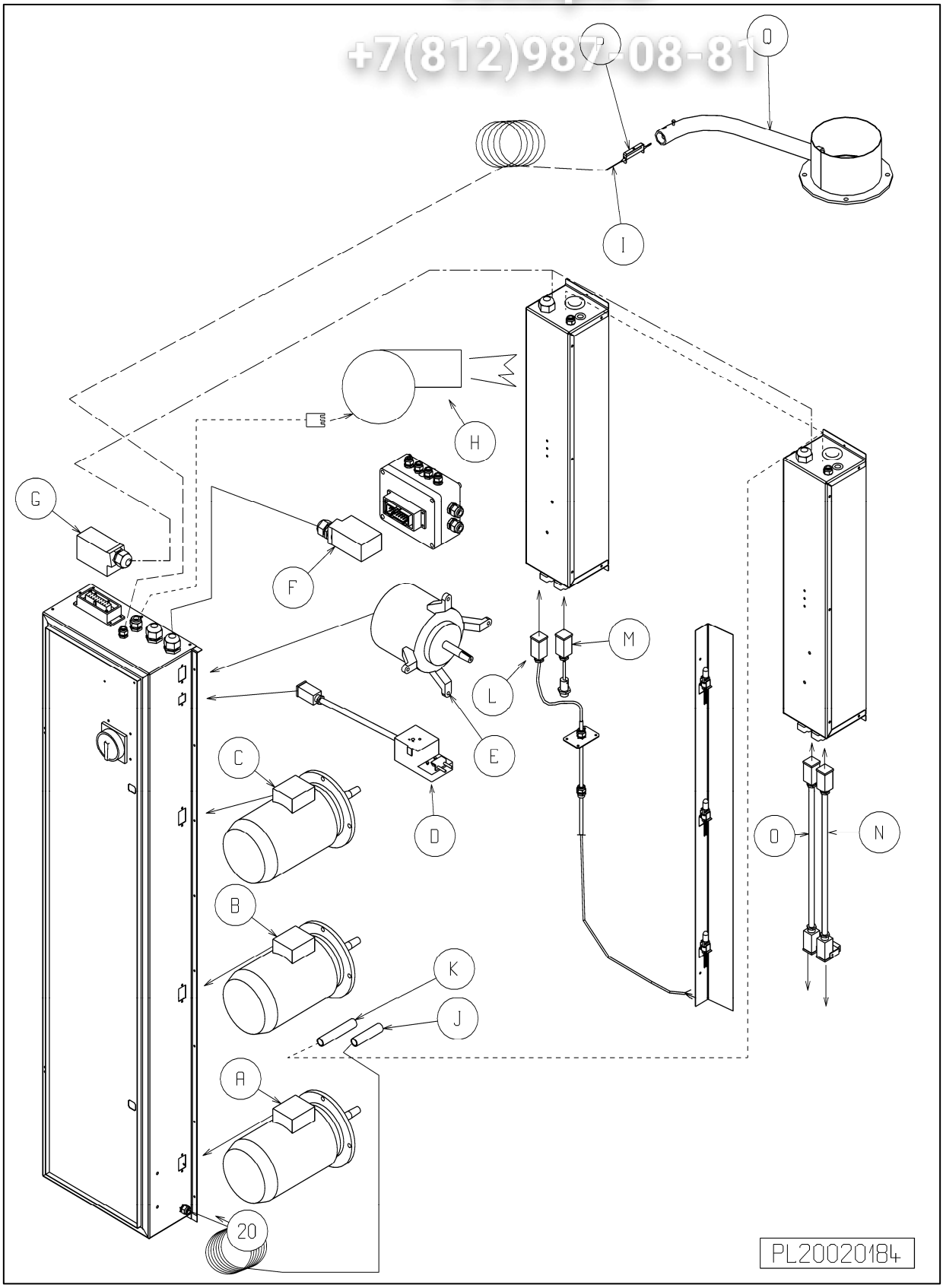
### 3.3.3 Electrical connections

| | **Oven type** | **M1** | | **M2** | |
|---|---|---|---|---|---|
| Cables | | **Oil/Gas** | **Electric** | **Oil/Gas** | **Electric** |
| | 208 to 240V | 4 x 2.5 $mm^2$ | 4 x 35 $mm^2$ | 4 x 4$mm^2$ | 4 x 50 $mm^2$ |
| | 380 to 415V | 5 x 1.5 $mm^2$ | 4 x 16 $mm^2$ | 5 x 2.5 $mm^2$ | 4 x 35 $mm^2$ |

– Cross sections are given for 1000RO2V cables for a maximum temperature of 30°C.

### 3.3.4 Connecting the fittings

**CRISTAL M1-M2 OIL /GAS**



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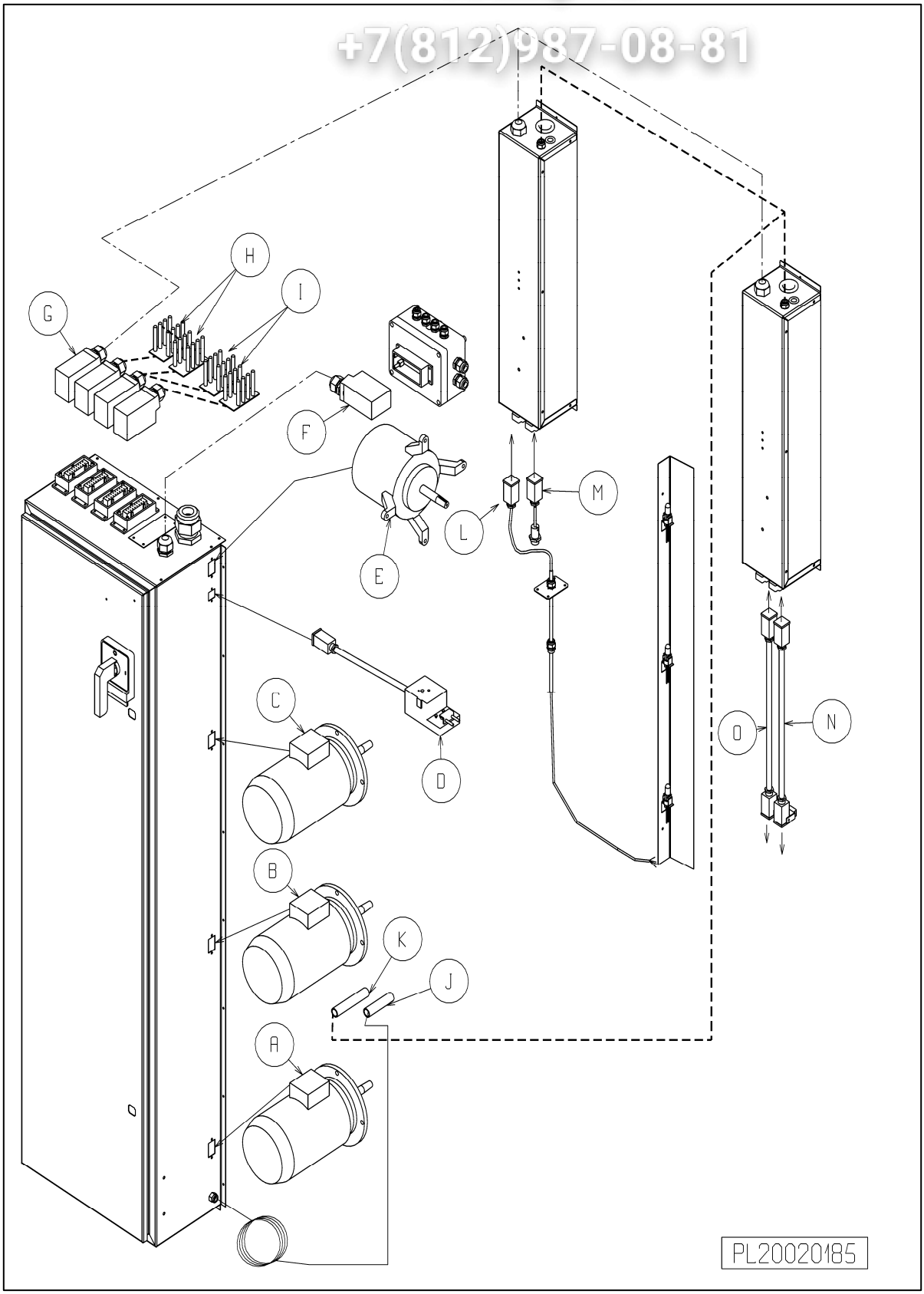
26800 Portes-Lès-Valence – France

## CRISTAL M1-M2 OIL/GAS

**A.** Moteur turbine de ventilation du bas
**B.** Moteur turbine de ventilation du milieu
**C.** Moteur turbine de ventilation du haut
**D.** Servomoteur de la commande du oura
**E.** Moteur de l'extracteur de buée
**F.** Connecteur 16 plots de la boîte de dérivation plafond
**G.** Connecteur 16 plots de la façade avant
**H.** Connecteur 6 plots du brûleur
**I.** Thermostat de sécurité des fumées
**J.** Doigt de gant du thermostat de sécurité de four
**K.** Doigt de gant du thermocouple de régulation du four
**L.** Connecteur 5 plots de l'éclairage
**M.** Connecteur 5 plots des détecteurs de la porte
**N.** Rallonge du détecteur de porte pour façade à gauche
**O.** Rallonge de l'éclairage pour façade à gauche
**P.** Support bulbe sécurité
**Q.** Tube sortie fumées

### 3.3.5 Connecting the fittings

**CRISTAL M1-M2 ELECTRIC**



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## CRISTAL M1-M2 ELECTRIC

**A.** Moteur turbine de ventilation du bas
**B.** Moteur turbine de ventilation du milieu
**C.** Moteur turbine de ventilation du haut
**D.** Servomoteur de la commande du oura
**E.** Moteur de l'extracteur de buée
**F.** Connecteur 16 plots de la boîte de dérivation plafond
**G.** Connecteur 16 plots de la façade avant
**H.** Connecteur 6 plots du bloc résistance de gauche
**I.** Connecteur 6 plots du bloc résistance de droite
**J.** Doigt de gant du thermostat de sécurité de four
**K.** Doigt de gant du thermocouple de régulation de four
**L.** Connecteur 5 plots de l'éclairage
**M.** Connecteur 5 plots des détecteurs de la porte
**N.** Rallonge du détecteur de porte pour façade à gauche
**O.** Rallonge de l'éclairage pour façade à gauche

## 3.4. WATER CONNECTION

The room must have a water supply point with an inlet pressure between 1 and 5 bars max. and fitted with a shut-off valve. Connector diameter: copper 10/12 with 20/27 male fitting.
Also provide for a ground drain (water overflow) with a pipe having a diameter of 44 mm to the sewer system and a minimum slope of 1 cm per metre.

This equipment is not equipped with a protective device against the drinkable water pollution by return of water.
In Europe, it is of your responsibility for respecting the regulations in force and for setting up the protective device against the drinkable water pollution by return of water adapted to the configuration of your bakery and your network of the water supply, and in compliance with the standard IN 1717, in application of the European directive 98 / 83-CE.

## 3.5. SMOKE EXHAUST CONNECTION

Connection is done using a 150 mm diameter stainless steel pipe for M1 Ø 180 mm for M2.
The vertical smoke flue must have a diameter of 200 and be fitted with a closed steam trap.

## 3.6. STEAM EXHAUST CONNECTION

Ø 180 mm.
The vertical steam flue must have a diameter of 200 and be fitted with a bleeder for condensation discharge.

## 3.7. FRESH AIR INTAKE

The installation site must include fresh air inlets in accordance with current regulations.
- If the oven steam outlet is connected to the exterior, a fresh air inlet flow of 1000 m³/h for the oven is required.
- If the steam outlet is connected to a system discharging air inside the oven room (e.g. into a condenser), a fresh air inlet flow for the oven is required as follows:

90 m³/h for M1
140 m³/h for M2

## 3.8. OIL CONNECTION AND BURNER ADJUSTMENT

The connection should be done with a 10/12 copper pipe, as per the recommendations on the next page.
2 valves with check valves are required.

### 3.8.1 Installing the oil burner

Oil burners compatible with CRISTAL ovens are as follows:

| | RIELLO | ELCO | CUENOD |
|---|---|---|---|
| **M1** | 40 F10 | VL1.55 | FC6 H101 AT1 |
| **M2** | 40 F10 | VL1.95 | FC9 H101 AT1 |

– Install the nozzle with the burner (see settings table)

– **When handling the burner, do not drop anything inside the furnace.**

– For any further information regarding the burner, refer to the manual that comes with it.

### 3.8.2 Adjustments

– Adjustment of the combustion head (see burner manual)

| | M1 | M2 |
|---|---|---|
| **RIELLO** | 2.5 | 4 |
| **CUENOD** | Y=20 | Y=16 |
| **ELCO** | Y = 20 | Y=16 |

– Adjustment of electrodes (see manual)

– Adjust the oil flow by installing a pressure gauge on the pump (see burner manual). Adjust the pressure according to the table below.

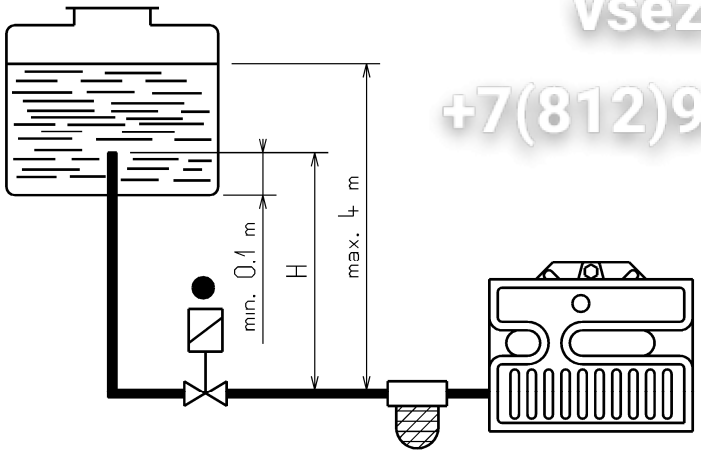
| | Nozzle (US gal) | Oil pressure bar | Oil flow l/hour |
|---|---|---|---|
| **M1** | 1 gal, 60° | 11 | 4.7 |
| **M2** | 1.65 gal, 60° | 11 | 7.8 |

– Adjustment of the air damper for efficient combustion - see burner manual -

| | M1 | M2 |
|---|---|---|
| **RIELLO** | 3 | 6.5 |
| **CUENOD** | 18 | 14 |
| **ELCO** | 18 | 14 |

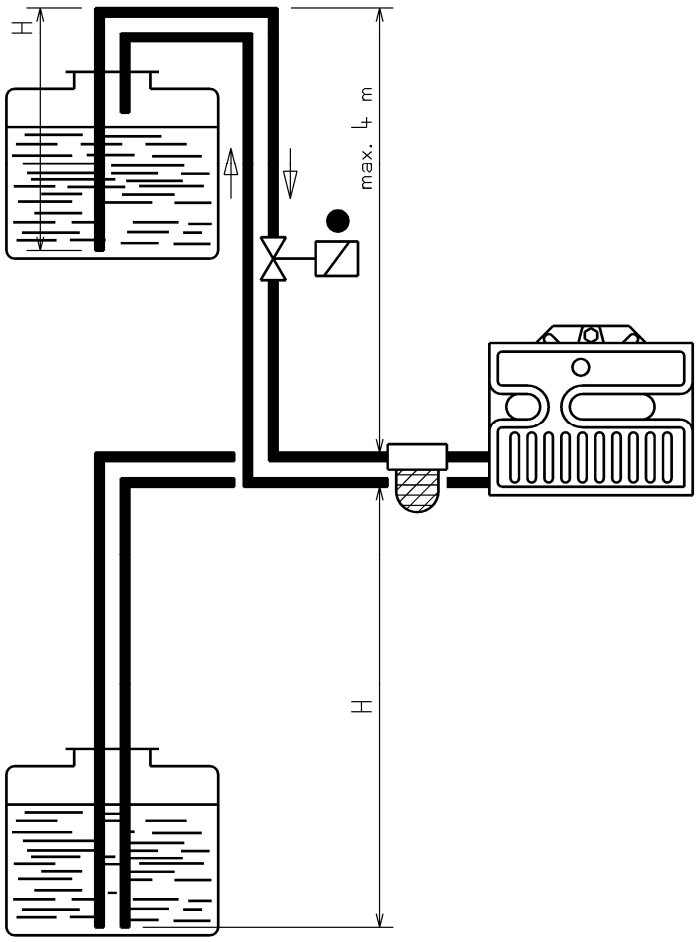
Figures indicated are for basic adjustments. They should be adapted in accordance with combustion test results.

– Adjustment of the air pressure switch -see burner manual-




H = Difference in height
L = Maximum length of suction pipe
∅ i = Internal diameter of the pipe

| T metre | L metres | |
|---|---|---|
| | ∅i 8 mm | ∅i 10 mm |
| 0.5 | 10 | 20 |
| 1 | 20 | 40 |
| 1.5 | 40 | 80 |
| 2 | 60 | 100 |




The oil lines must be perfectly leak-tight. It is advisable to design the arrival and return points at the same height in the tank.
In this case the bottom valve is not required. If, on the other hand, the return line is located above the oil level, the bottom valve must be installed.
This solution is less safe than in the previous case, owing to the possibility of valve leakage.

| T metre | L metres | |
|---|---|---|
| | ∅i 8 mm | ∅i 10 mm |
| 0 | 35 | 100 |
| 0.5 | 30 | 100 |
| 1 | 25 | 100 |
| 1.5 | 20 | 90 |
| 2 | 15 | 70 |
| 3 | 8 | 30 |
| 3.5 | 6 | 20 |

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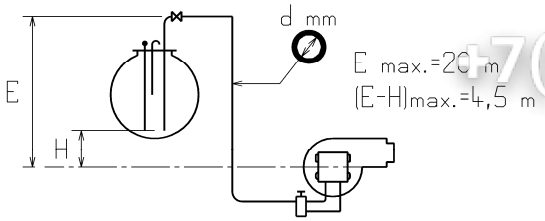
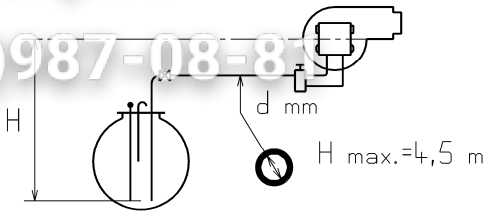
## Pipe dimensions

**SINGLE-PIPE SYSTEM PRESSURE SIDE**



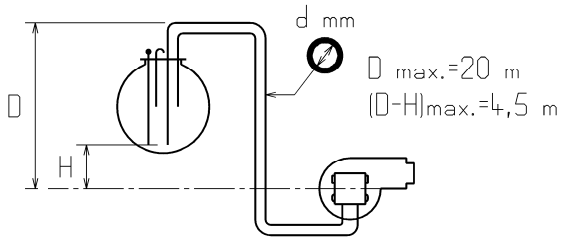

**SINGLE-PIPE SYSTEM SUCTION SIDE**



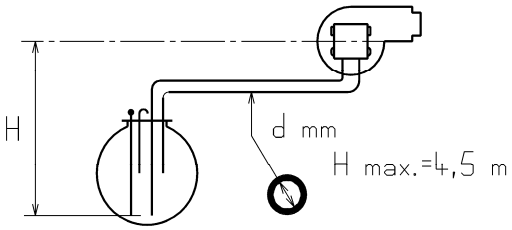

| GPH NOZZLE | 0.5 | 0.6 | 0.8 | 1 | 1.5 | | 2 | |
|---|---|---|---|---|---|---|---|---|
| D(mm) / H(m) | 4 | 4 | 4 | 4 | 4 | 6 | 4 | 6 |
| 0 | 90 | 75 | 56 | 45 | 30 | 150 | 22 | 113 |
| 0.5 | 100 | 83 | 63 | 50 | 33 | 150 | 25 | 126 |
| 1 | 110 | 92 | 69 | 55 | 37 | 150 | 27 | 139 |
| 2 | 131 | 109 | 82 | 65 | 44 | 150 | 33 | 166 |
| 3 | 152 | 126 | 95 | 76 | 50 | 150 | 38 | 192 |
| 4 | 172 | 144 | 108 | 86 | 57 | 150 | 43 | 218 |

| GPH NOZZLE | 0.5 | 0.6 | 0.8 | 1 | 1.5 | | 2 | |
|---|---|---|---|---|---|---|---|---|
| D(mm) / H(m) | 4 | 4 | 4 | 4 | 4 | 6 | 4 | 6 |
| 0 | 90 | 75 | 56 | 45 | 30 | 150 | 22 | 113 |
| 0.5 | 76 | 66 | 50 | 40 | 26 | 134 | 20 | 100 |
| 1 | 69 | 57 | 43 | 34 | 23 | 116 | 17 | 87 |
| 2 | 48 | 40 | 30 | 24 | 16 | 80 | 12 | 61 |
| 3 | 28 | 23 | 17 | 14 | 9 | 47 | 7 | 35 |
| 4 | 7 | 6 | 4 | 0 | 0 | 12 | 0 | 9 |

**TWIN-PIPE SYSTEM PRESSURE SIDE**




**TWIN-PIPE SYSTEM SUCTION SIDE**




| HEIGHT | PIPE OUTER DIAMETER d (mm) | | | |
|---|---|---|---|---|
| m | 4 | 6 | 8 | 10 |
| 0 | 2 | 15 | 50 | 124 |
| 0.5 | 2 | 16 | 56 | 138 |
| 1 | 2 | 18 | 61 | 150 |
| 2 | 3 | 22 | 73 | 150 |
| 3 | 4 | 26 | 85 | 150 |
| 4 | 4 | 30 | 97 | 150 |

| HEIGHT | PIPE OUTER DIAMETER d (mm) | | | |
|---|---|---|---|---|
| m | 4 | 6 | 8 | 12 |
| 0 | 15 | 50 | 124 | 150 |
| 0.5 | 13 | 44 | 109 | 150 |
| 1 | 11 | 38 | 95 | 150 |
| 2 | 7 | 26 | 66 | 138 |
| 3 | 3 | 14 | 37 | 79 |
| 4 | 0 | 0 | 8 | 19 |

* **Single-pipe system suction side**

We thoroughly recommend the use of a prefilter linked to the pump by twin pipes - this allows for manual or automatic draining of the installation.

Open the drain cock during burner inhibition and only close when oil flows through the drain cock. The volume of residual air in the pump will be eliminated through the nozzle.

**The pump is not amenable to conversion from a twin pipe to a single pipe configuration**.

Maximum lengths (intersection of a line and a column) are indicated in metres and have been calculated with four elbows, 1 stop valve and 1 check valve. In the event of additional limitation, this length should be reduced by equivalent values as regards head loss.

Examples:

**Twin pipe system suction side:**

- Suction height: 1 metre
- Length of pipes between the burner and the tank bottom: 25 metres

Pipes with an internal diameter of 8 mm (6 mm is too small as max. length = 10 metres) should be used.

Single pipe system pressure side:

- Nozzle used: 2 gph
- Distance between tank bottom and burner: 0.5 metre
- Pipe length: 70 metres

Pipes with an internal diameter of 6 mm (4 mm is too small as max. length = 24 metres) should be used.

# 4. CONVERTING THE OVEN FOR USE WITH A DIFFERENT TYPE OF GAS

**For Belgium, this operation has to be carried out by Pavailler.**
**For all other countries, this operation has to be carried out by a qualified technician.**

## 4.1. RIELLO BURNER

Replace the current injector by a model compatible with the new type of gas.
. Natural gas ∅ 2.2
. Propane gas ∅ 1.5
Repeat complete burner adjustment procedure *(see section 3.2).*

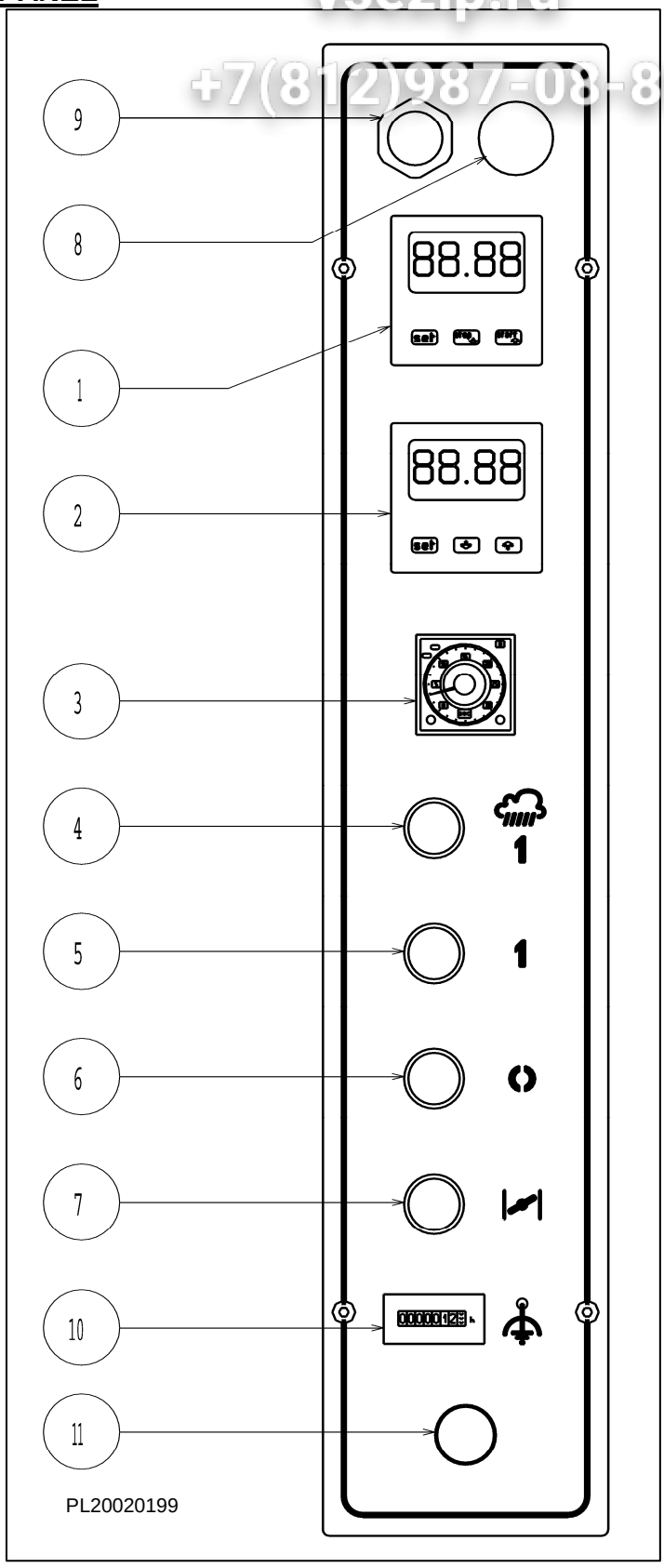
## 4.2. CUENODOR ELCO BURNER

Install or remove the propane seal cap
. Natural gas → no seal cap, diffuser set.
. Propane gas → cap installed, diffuser removed.
Repeat complete burner adjustment procedure *(see section 3.2).*

Record the results in the maintenance log.

# 5. OPERATION AND INSTRUCTIONS FOR USE

## 5.1. CONTROL PANEL

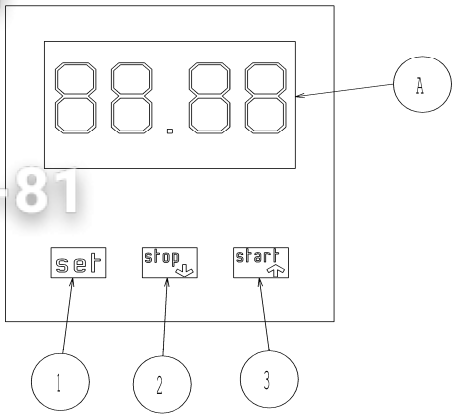


| REP. | DESIGNATION | UTILISATION |
|---|---|---|
| 1 | Minuterie de fin de cuisson ou démarrage différé | Détermine la fin de cuisson par buzzer ou permet le démarrage du four en différé |
| 2 | Régulateur de température | Permet de régler la température de la chambre de cuisson |
| 3 | Minuterie de buée | Règle la durée d'injection de buée |
| 4 | Bouton marche avec buée | Permet le démarrage du four et l'injection automatique de buée |
| 5 | Bouton marche sans buée | Permet le démarrage du four sans injection de buée (préchauffage ou cuisson viennoiserie) |
| 6 | Bouton arrêt | Permet l'arrêt du four (sans extraction de buée) |
| 7 | Bouton d'ouverture du OURA | Permet le changement de position du OURA :<br>Voyant éteint : OURA fermé<br>Voyant éclairé : OURA ouvert |
| 8 | Voyant | Signal lumineux de fin de cuisson |
| 9 | Buzzer | Signal sonore discontinu en fin de cuisson<br>Signal sonore continu pendant la descente du chariot |
| 10 | Compteur totalisateur | Indiquer le nombre d'heure de fonctionnement du four (pour entretien) |
| 11 | Bouchon | |

The oven door opening (ajar position) allows for automatic steam discharge before opening the door completely (delayed safety system).

## 5.2. TIMER






This timer has two operational modes:
- baking timer from 00 to 99 minutes
- automatic oven start-up from 00 hr 00 min to 99 hr 59 minutes

To change over to automatic start-up mode, press ‘Stop’ for 3 seconds.

To return to baking timer mode, press ‘Stop’ once.

The display is different depending on the mode selected:
In baking timer mode, two digits are displayed.
In automatic start-up mode, four digits are displayed.

### 5.2.1 Baking timer mode

The baking timer mode makes it possible to indicate the end of the baking time by means of a buzzer (Note: the oven does not actually turn off automatically).

- To set the baking time, press ‘Set’: The display will flash. Reduce or increase the baking time using the ‘Stop’ or ‘Start’ buttons. Press ‘Set’ to confirm. The display will stop flashing.

- To start the timer running, press ‘Start’.

- During the baking time, you can use the ‘Stop’ button to stop and go back to the programmed baking time.

- At the end of the baking time, press ‘Stop’ to silence the buzzer.

### 5.2.2 Automatic start-up mode

The automatic start-up mode makes it possible to start the oven automatically once the programmed time has elapsed (for pre-heating).

-To set the time before start-up: press ‘Set’. The hours flash. Reduce or increase the value using the ‘Stop’ or ‘Start’ buttons. Press ‘Set’. The minutes will now flash. Adjust the value using the ‘Stop’ or ‘Start’ buttons.

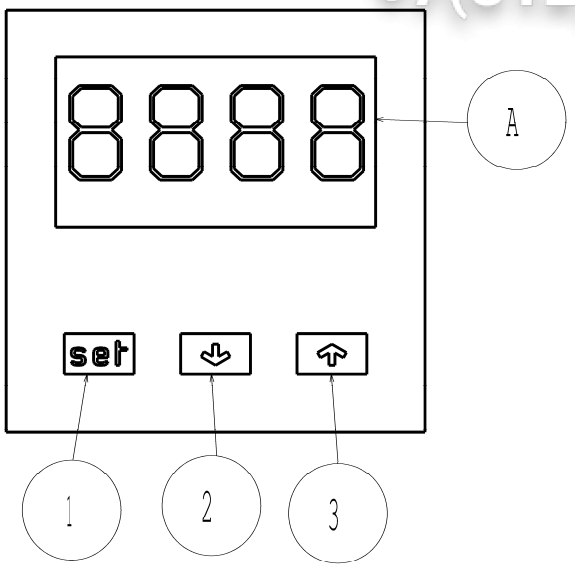
- To start the countdown, press ‘Start’. The colon will flash.

- You can stop the countdown by pressing the ‘Stop’ button and return to baking timer mode.

- At the end of the countdown, the oven starts and the timer reverts to baking timer mode.

## 5.3. TEMPERATURE REGULATOR

This is where you can select the baking temperature. The temperature value is shown on the regulator display. As soon as the temperature setpoint is reached, the display OUT1 goes out.

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### 5.3.1 Oven temperature reading

Permanently shown on the display (A).

### 5.3.2 Reading and changing the temperature

Press the SET button (1) once.
The bottom left thermometer icon will flash. The temperature value is displayed.
You can adjust this temperature using the up (3) and down (2) arrows.
To go back to the actual oven temperature, press SET once. The thermometer icon will go out.

### 5.3.3 Locking the regulator

Continue pressing the up arrow button (3) (for approx. 4 sec) until the device displays '**0-nn'**.
The regulator is now locked. If you press 'set', '**O-nn'** is displayed and you can no longer see or change the set temperature.
To unlock, continue pressing the up arrow (around 4 sec) until **0-nn** disappears.



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## 5.4. START-UP

***CAUTION ON THE RISKS OF BURNS :***

During all the duration of use of the oven in cooking from the preheating to the cooling, there are residual risks of burns, particularly at the front of the oven, especially on articulated windows.
Wearings personal protective equipement like anti-scald gloves is REQUIRED for the introduction and the withdrawal of cooking support in the oven.

**PRELIMINARY OPERATIONS:**

- CHECK the direction of rotation of impellers (anti-clockwise inside the oven) by pressing an impeller motor contactor KM6.

**If necessary, reverse 2 phases on the MAINS SUPPLY of the disconnection switch.**

**- Then press the contactor KM4 briefly to check that you are in the UP DIRECTION.**

**THEN:**

Set the switch to the ON position on the oven's electrical cabinet.
- Position 0 - oven OFF
- Position 1 - oven ON
Close the oven door.
Set the timer to ‘bake’ mode.
Set the temperature regulator to the required temperature.
Press the ON button 1, the indicator lights up (steam generator off)
The oven is pre-heating.

**Heat-up time**

Oven 15'
Steam heat-up time: 1 hour

**Automatic start-up**

See baking timer.

## 5.5. BAKING TIME

- The values are given by way of information. The user should adjust these as preferred.
- Temperature between 220° and 230°C.

| | | |
|---|---|---|
| Products: | 200 gr | 20' |
| | 250 gr | 25' |
| | 400 gr | 30' |
| | 500 gr | 35' |

## 5.6. STARTING A BAKING CYCLE

The oven is ON (press 'Start'):

- Set the steam generator timer,
- Set the baking time on the timer.

To load the 1st rack, stop the oven by pressing the OFF button 0.

- Open the door.
- Insert the rack.
- Close the door.
- Press the ‘Start with steam’ button.
- The oven starts with automatic steam injection.
  The impeller and burner do not start immediately (approx. 2' time delay).

## 5.7. END OF BAKING CYCLE

- Open the DAMPER where applicable.
- Open the door with the handle and leave it ajar.
  .The steam exhaust fan starts
  .At the end of the extraction process, the rack descends and the door is unlocked.
- Remove the rack.

## 5.8. CLEANING OF THE OVEN

Regularly clean the oven inside and outside surfaces to prevent excess dirt.
Before any cleaning operation switch off the oven and disconnect it.

**Prevention of risks related to flour emissions:**

Cleaning may raise substantial amounts of flour dust. Flour dust is the main cause of respiratory allergies in bakery.

- Do not use compressed air blowers.
- Use a suitable industrial vacuum cleaner.

### 5.8.1 Cleaning of stainless steel surfaces, painted parts and glazing:

**Use:**
-detergents such as soap, lye, dishwashing products, bleach-free window-cleaning products. Always rinse off with clear water.
-sponges, clean cloths and chamois leather, squeegees.
**Do not use**:
-any products containing bleach or other chlorinated derivatives
-pressurized water jets or high pressure cleaners.
-brush with steel bristles or steel pads
-silverware cleaning products
-powders for scouring and scraper sponges
-hydrochloric acid is strictly forbidden.

Clean: interior, middle and exterior door glazing.

- Remove the external knurled nuts and silicone washers (4 each) and clean the exterior and middle glazing.
- Assemble in reverse order and tighten the knurled nuts manually.
- Then remove the knurled nuts and silicone washers (10 each) of the interior glazing and clean the interior and middle glazing.
- Assemble in reverse order and tighten the knurled nuts manually. Make sure you replace the gasket of the interior glazing properly.

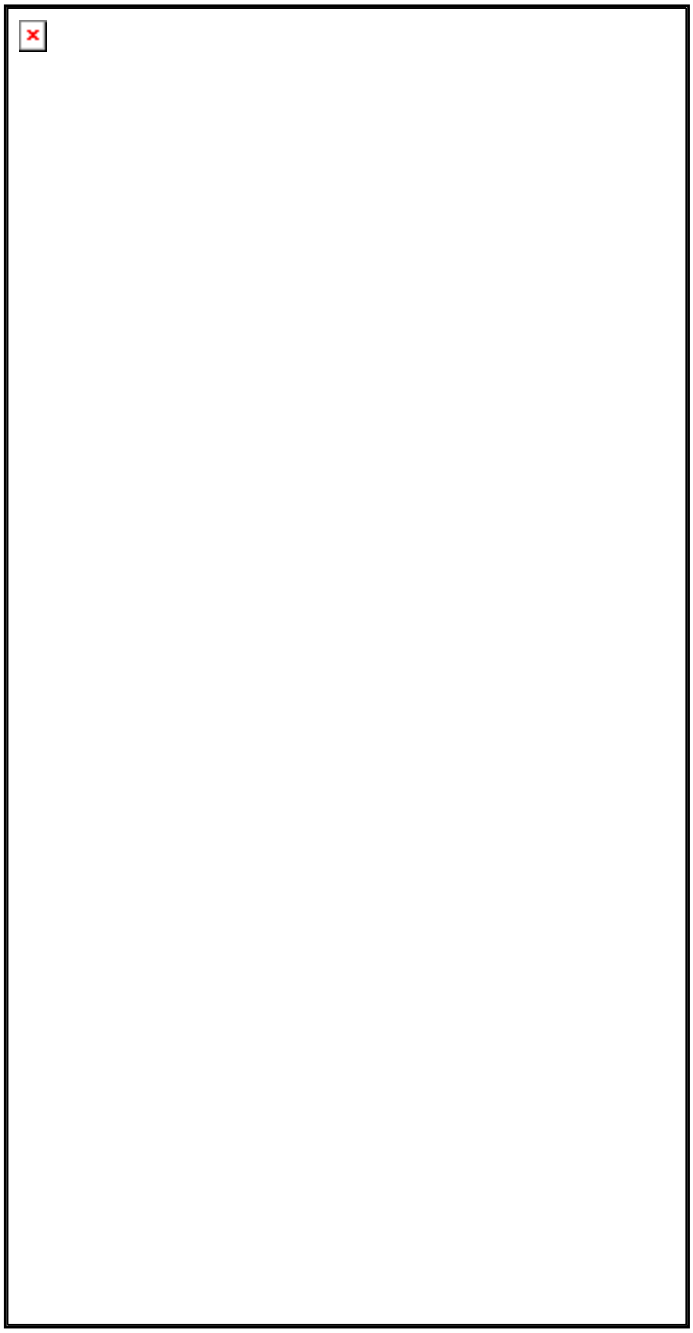
Remove any dust from the oven.

### 5.8.2 Cleaning of the floor around the oven

Make sure not to let any water underneath the oven when cleaning the floor.
No bleach (even diluted) should go underneath the oven.
Avoid any contact with acids especially hydrochloric acid. (Used by floor tilers for cleaning purposes)

## 5.9. ELECTRONIC CONTROL PANEL

### 5.9.1 Presentation



| Nos. | Description |
|---|---|
| 1 | Oven start-up |
| 2 | Hood fan On/Off key |
| 3 | Steam injection |
| 4 | Temperature settings |
| 5 | Timer settings |
| 6 | Program selection |
| 7 | Opening of the steam damper with its indicator (indicator on = steam damper open; indicator off = steam damper closed) |
| 8 | Cycle start |
| 9 | "Minus" key |
| 10 | "Plus" key |
| 11 | Lighting On/Off key |
| 12 | Access to the "manual“ mode |
| 13 | Current program |
| 14 | Baking time left (or programming) |
| 15 | Baking temperature (or programming) |



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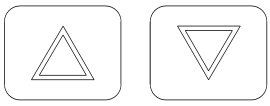
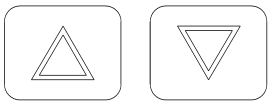
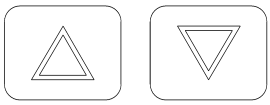
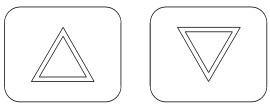
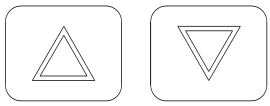
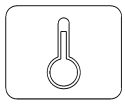
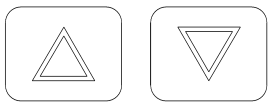
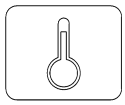
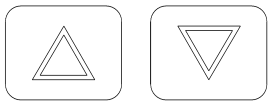
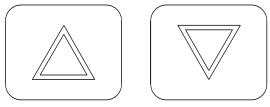
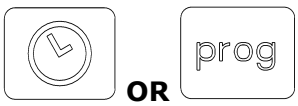
### 5.9.2 Date settings

| STEPS | DISPLAY | KEYS | ACTION |
|---|---|---|---|
| 0 | 250<br>1122<br>P01 | PREHEATING MODE | → Oven temperature: 250°<br>→ Time: 11h22<br>→ Program: 01 |
| | |  | Press 5 s |
| 1 | 0932 |  | TIME modification |
| | |  | Validation |
| 2 | 11<br>0-99 |  | YEAR modification |
| | |  | Validation |
| 3 | 04<br>0-12 |  | MONTH modification |
| | |  | Validation |
| 4 | 12<br>0-31 |  | DAY modification |
| | |  | Validation<br>Press 5 s or<br>wait 10 s |

### 5.9.3 Delayed start (manual or automatic)

| STEPS | DISPLAY | KEYS | ACTION |
|---|---|---|---|
| 0 | - 1 -<br>1 8 2 0 | STANDBY MODE | → Day: Monday<br>→ Time: 18H20 |
| | |  | Press 5 s |
| 1 | - - -<br>- - - -<br>H 0 1 |  | Timer selection (H01 to H14) |
| | |  | Press 5 s |
| 2 | - 2 -<br><br>H 0 1 |  | Timer selection |
| | 1 = Monday<br>2 = Tuesday<br>3 = Wednesday<br>4 = Thursday<br>5 = Friday<br>6 = Saturday<br>7 = Sunday | | 1-5 = From Monday to Friday<br>1-6 = From Monday to Saturday<br>1-7 = From Monday to Sunday<br>6-7 = From Saturday to Sunday |
| | |  | Timer selection |
| 3 | P 0 1<br><br>H 0 1 |  | Press 5 s |
| | |  | Timer selection |
| 4 | - 2 -<br>0 6 0 0<br>H 0 1 |  | Press 5 s |
| | |   OR | Timer selection |



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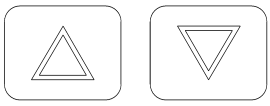
26800 Portes-Lès-Valence – France

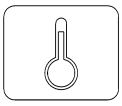
| | | | | |
|---|---|---|---|---|
| If active timer | - 1 -<br>1 8 2 0<br>- - -<br>- 2 -<br>0 6 0 0<br>H 0 1 | Current status (Day and time)<br>Programming (Day, time and program) | Display in intermittence | Automatic start-up mode |
| If no active timer | - 1 -<br>1 8 2 0 | | | Standby mode |

When the oven stops the next start-up is searched according to the day and time of the programmed timers. A maximum number of 14 timers can be programmed.

### 5.9.4 Operating hours counter

| STEPS | DISPLAY | KEYS | ACTION |
|---|---|---|---|
| 0 | - 1 -<br>1 8 2 0 | STANDBY MODE | → Day: Monday<br>→ Time: 18H20 |
| | |  | |
| 1 | 1 2 7 H<br>C 0 1 |  | Counter selection:<br>C01 = Number of operating hours of the board (power on)<br>C02 = Number of running hours (except standby)<br>C03 = Number of heating hours<br>C03 = Number of non-heating hours<br>C05 = Number of cycles initiated (button 8)<br>C06 = Number of steam cycles (button 3) |
| 2 | |  | Visual display output<br>Press 5 s or<br>wait 10 s |

### 5.9.5 Manual operation (without program)

| STEPS | DISPLAY | KEYS | ACTION |
|---|---|---|---|
| | |  | |
| 1 | 190<br>0015<br>MAn | prog **then**   | Manual program selection **MAn** |
| | |  | Validation |
| 2 | 190<br>0015<br>MAn |   | Temperature modification |
| | |  | Validation |
| 3 | 190<br>0015<br>MAn |   | Baking time modification |
| | |  | Validation |
| 4 | 190<br>0<br>MAn |  | End |

There is no automatic steam injection.



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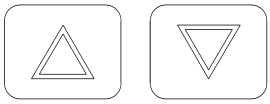
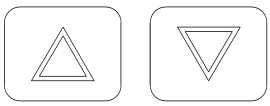
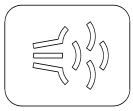
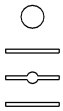
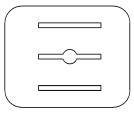
26800 Portes-Lès-Valence – France

### 5.9.6 Manual modification during a baking cycle

| STEPS | DISPLAY | KEYS | ACTION |
|---|---|---|---|
| | |  | |
| 1 | 2 0 0<br>t 2<br>P 0 1 |  | Temperature modification<br>T1 = Preheating Temperature<br>T2 = Baking Temperature |
| | | | Validation after 10 s |
| | |  | Validation |
| 2 | 2 0 0<br>0 0 0 7<br>P 0 1 |  | Modification of the baking time left |
| | |  | Validation after 10 s |
| 3 | |  | Holding the key: Steam injection |
| 4 |  |  | Opening / closing of valve |
| | LED on = Valve open<br>LED off = Valve closed | | |

**These settings are limited and do not change the programming of a recipe.**

### 5.9.7 Recipe programming

| STEPS | DISPLAY | KEYS | ACTION |
|---|---|---|---|
| | | prog then | A red point flashes above on the right of P during all the programming |
| 1 | 200<br>0020<br>P05 | △ ▽ | Program selection |
| | | | Validation |
| 2 | 220<br>t1<br>P05 | △ ▽ | Preheating temperature modification |
| | | | Validation |
| 3 | 200<br>t2<br>P05 | △ ▽ | Baking temperature modification |
| | | | Validation |
| 4 | 200<br>0021<br>P05 | △ ▽ | Baking time selection |
| | | | Validation |
| 5 | 5<br>P05 | △ ▽ | Valve opening time selection (at end of baking cycle) |
| | | | Validation |
| | 10<br>P05 | △ ▽ | Steam injection time selection |
| 6 | | prog | Press 5 s: Parameter validation |

Each key validates the previously modified parameter.



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### 5.9.8 Selecting and starting a recipe

| STEPS | DISPLAY | KEYS | ACTION |
|---|---|---|---|
| 0 | 250<br>1122<br>P01 | PREHEATING MODE | → Oven temperature: 250°<br>→ Time: 11h22<br>→ Program: 01 |
| 1 | | prog | Program selection (see recipe programming) |
| | | Validation after 10 s | |
| | 250<br>1122<br>--=<br>Intermittent sound signal | | Temperature reached<br>End of preheating cycle |
| | | | Door opening: Loading |
| | | | Door closing |
| 2 | | start | Start of baking cycle |
| | 250<br>0020<br>P01 | | Baking cycle<br>→ Oven temperature: 250°<br>→ Time left: 20 min<br>→ Program: 01 |
| | 200<br>0020<br>=--<br>Intermittent sound signal | | End of baking cycle |
| 3 | | start | Stop buzzer |

### 5.9.9 Protouch panel error list

| ERROR | CAUSE | ACTION |
|---|---|---|
| Err 1 | Defect if absence Sector > 2mn | Press key   |
| Err 2 | Defect sounds Temperature 1 Detected if disconnected or defective probe (borders 29 and 30) | Press key   |
| Err 3 | Defect sounds Temperature 2 Detected if disconnected or defective probe (borders 27 and 28) | Press key   |
| Err 4 | Defect sounds Temperature 3 Detected if disconnected or defective probe (borders 25 and 26) | Press key   |
| Err 6 | Defect of rack rotation(border 5) | Press key   |
| Err 7 | Defect thermostats of security (border 6) | Press key   |

| ERREUR | CAUSE | ACTION |
|---|---|---|
| Err 11 | Defect open door (border 4) | Press key   |
| Err 12 | Defect battery : change the battery CR2032 if tension < 2,5V | Press key   |
| Err 13 | Not exploitation of the oven Detected if the oven is in regulation since 45 mn or no injection vapor since 70 mn | Press key   |
| tEC 14 | Annual revision if counter > 10000 h | Press key   |
| Err 16 | Defect connection keyboard | Press key   |

# 6. MAINTENANCE

**Important:**
**Maintenance and servicing must be carried out by a qualified technician.**
**The oven must be switched off (position 0 on the oven disconnection switch).**
**Never use the disconnection switch while the oven is on**.

### 6.1.1 Replacement of wear and adjustment parts.

- Replacement and tensioning of the screw-nut system belt (for M1 and M2 ovens only).
Adjustment and greasing of rack drive gears with WOLFRAKOT GREASE (grey).

- Greasing of the rack raising screw-nut system with WOLFRAKOT GREASE (grey) (only applicable for M1 and M2 versions).

- Greasing of the top ball thrust bearing, yoke and rotary shaft mount bronze rings, drive disc threading with HT BARRIERTA or PYRATEX GREASE (white).

- Greasing of the two ball bearings of the screw-nut system with BEARING GREASE (yellow) (for M1 and M2 ovens only).
IMPORTANT: never mix different greases together.

### 6.1.2 Oil or gas ovens

- Maintenance of burner max. every 6 months or 800 hours of operation. (Refer to burner manual).
- Clean the oil pump filter and replace the seal (oil ovens).
- Clean the oil prefilter (optional) (oil ovens).
- Sweep the flue in accordance with current local regulations.
In all cases, it must be swept at least once a year.
Check the door gasket and replace if necessary.

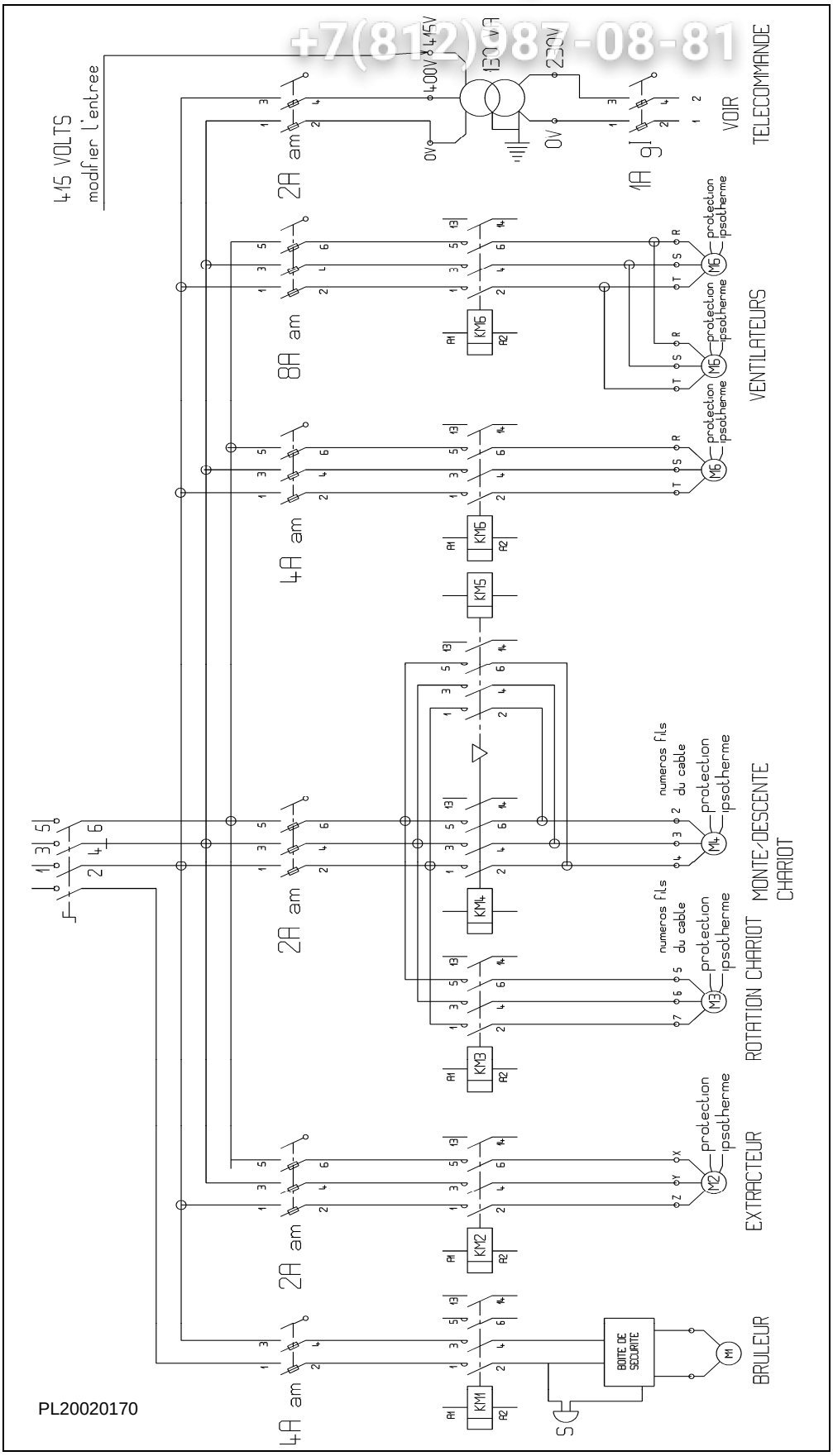
### 6.1.3 Steam generator

To be carried out max. every 6 months or after 800 hours of operation or as soon as steam injection efficiency is reduced.

- Remove the steam generators.
- Descale them
- Rinse thoroughly to eliminate any traces of the scale remover.
- Replace the steam generators.

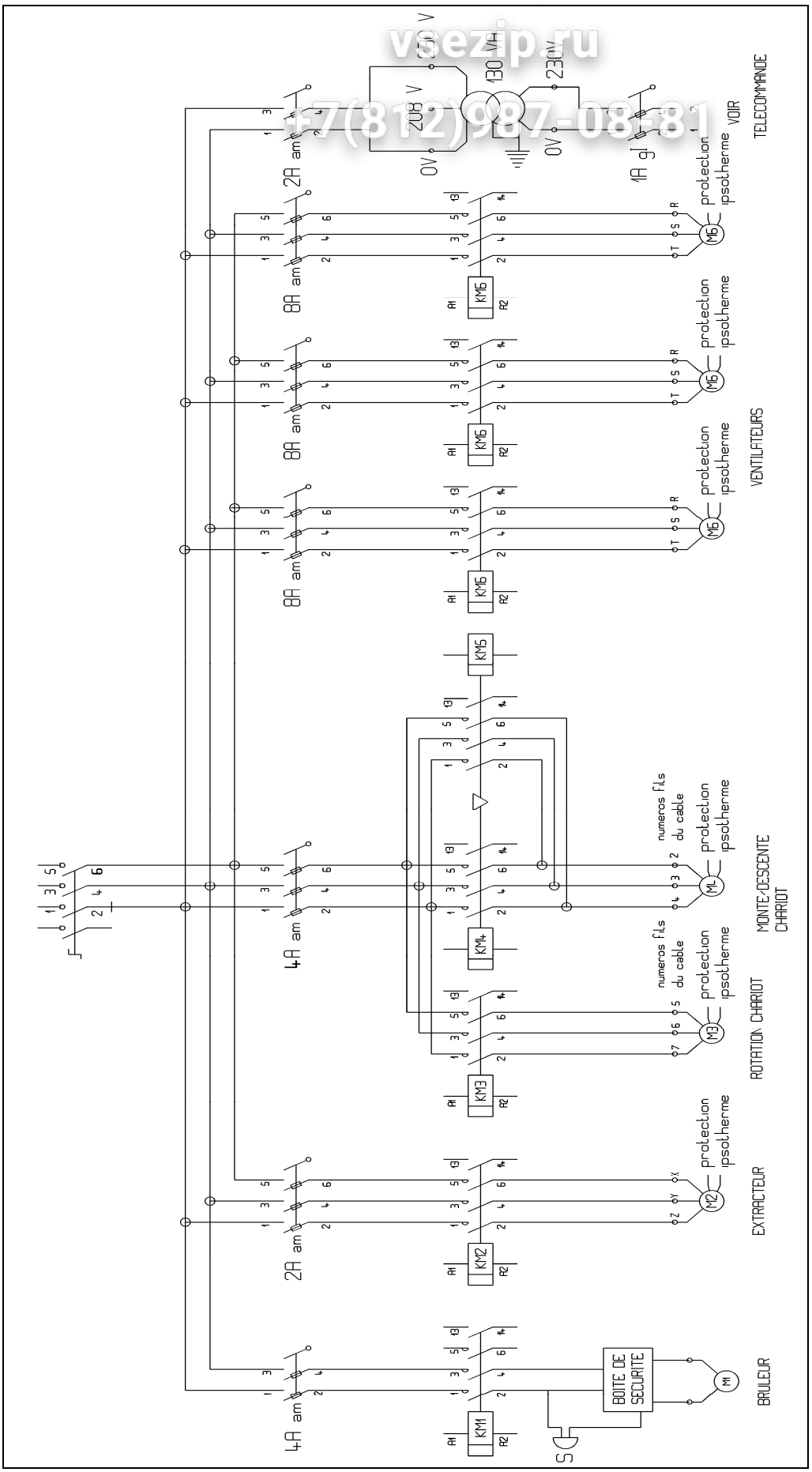
# 7. WIRING DIAGRAMS

## 7.1. OIL/GAS 380/415V POWER DISTRIBUTION DIAGRAM

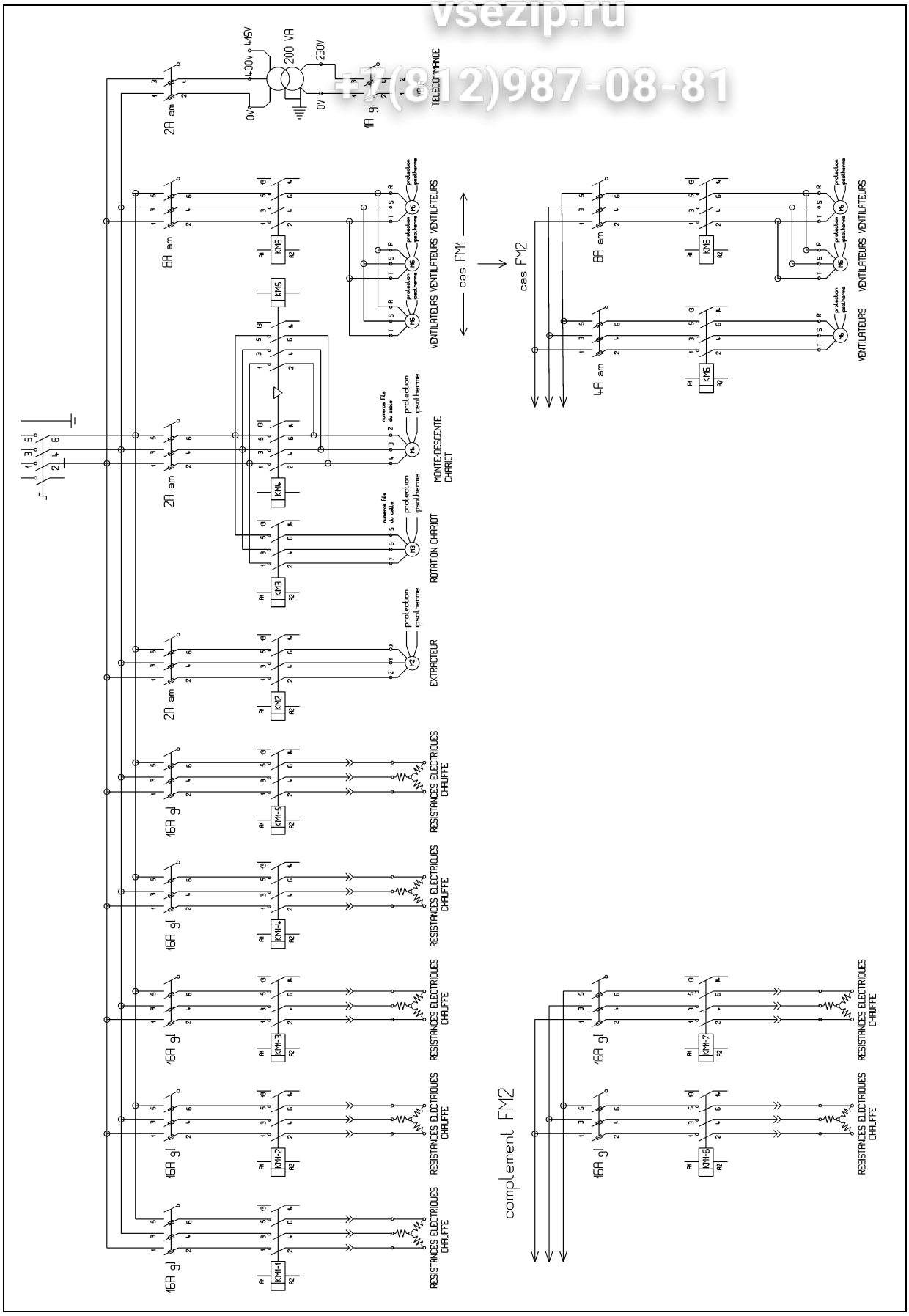


## 7.2. OIL/GAS 208/230 POWER DISTRIBUTION DIAGRAM



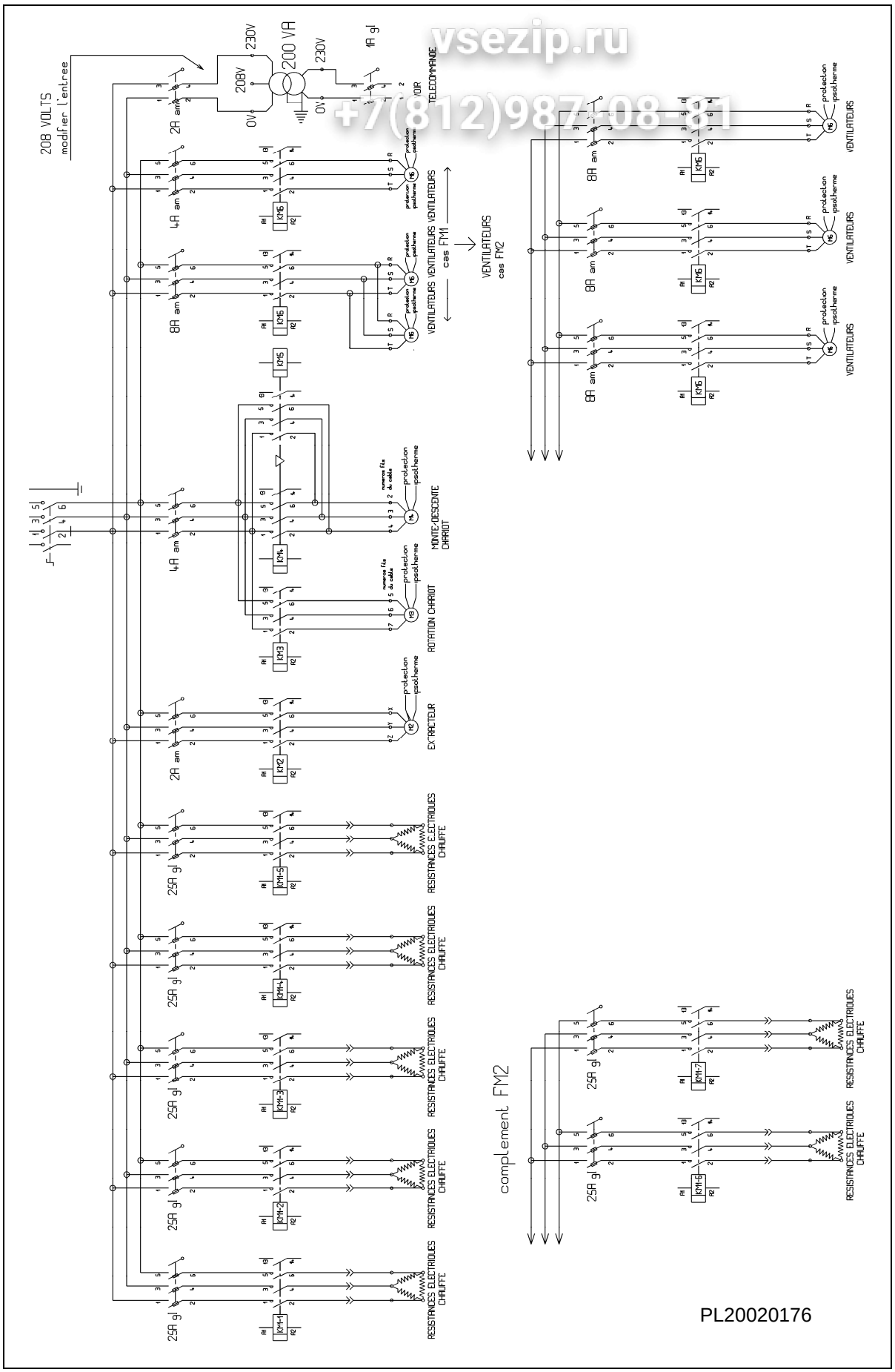


## 7.3. ELECTRIC 380/415V POWER DISTRIBUTION DIAGRAM



## 7.4. ELECTRIC 208/230V POWER DISTRIBUTION DIAGRAM





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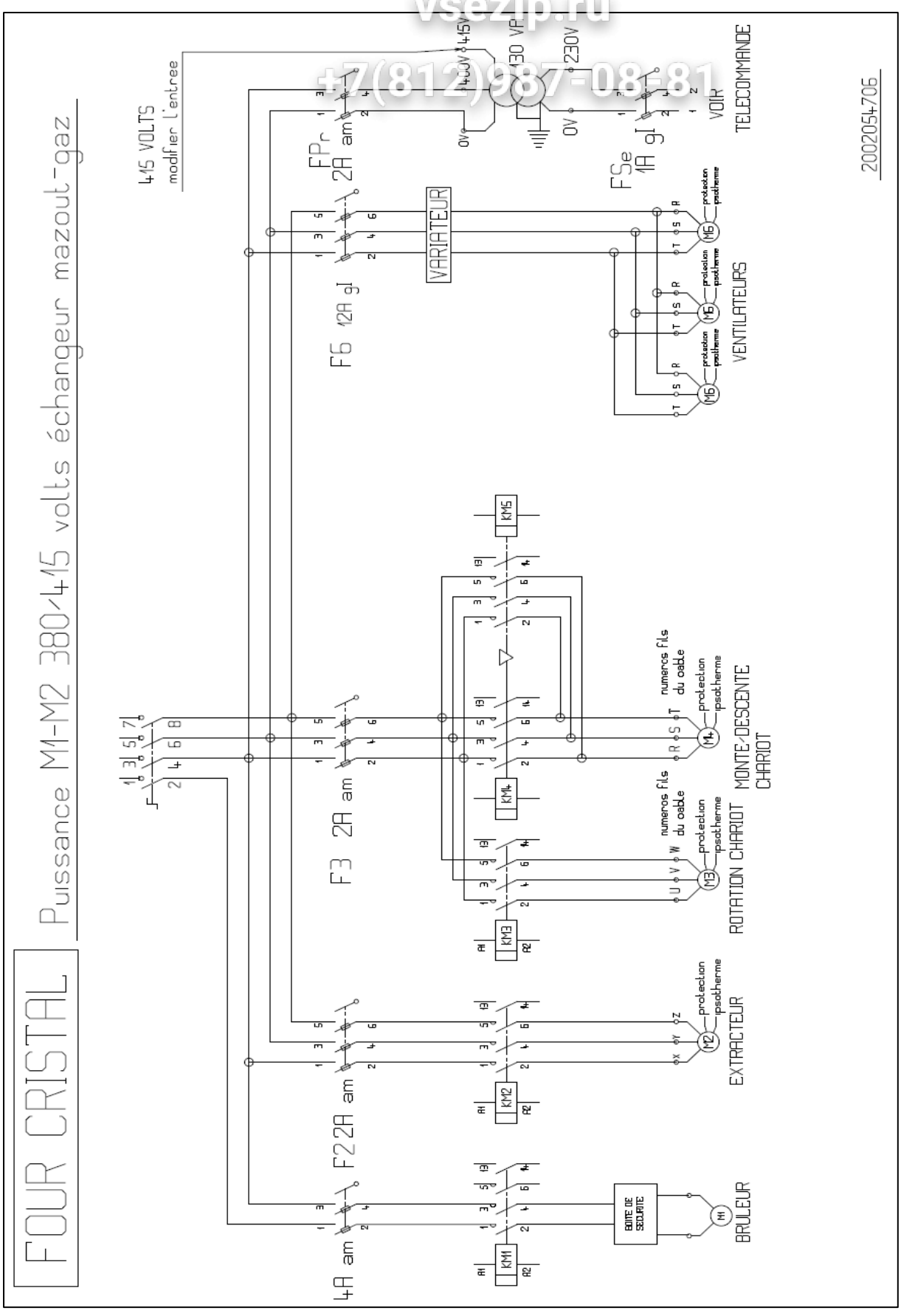
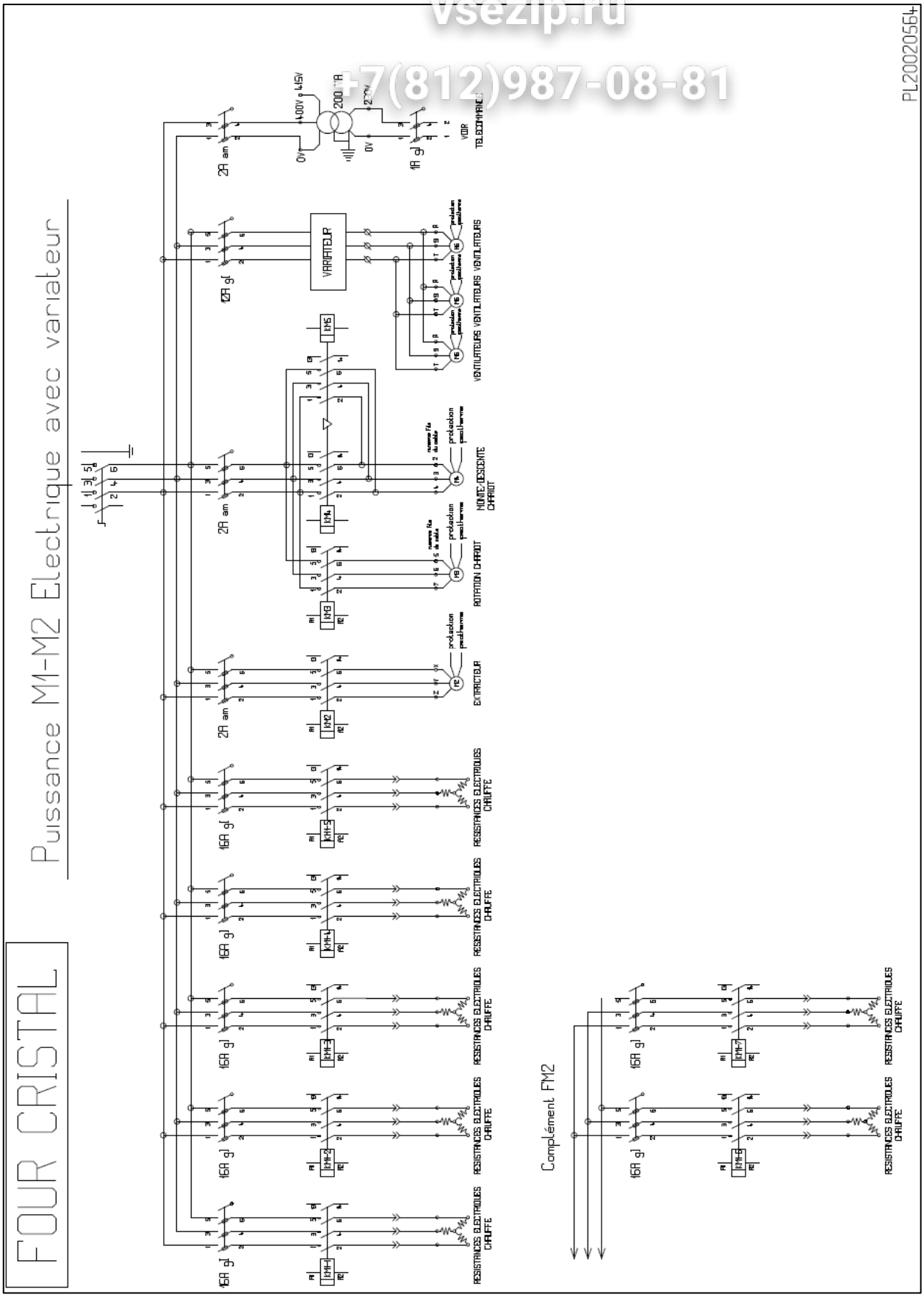
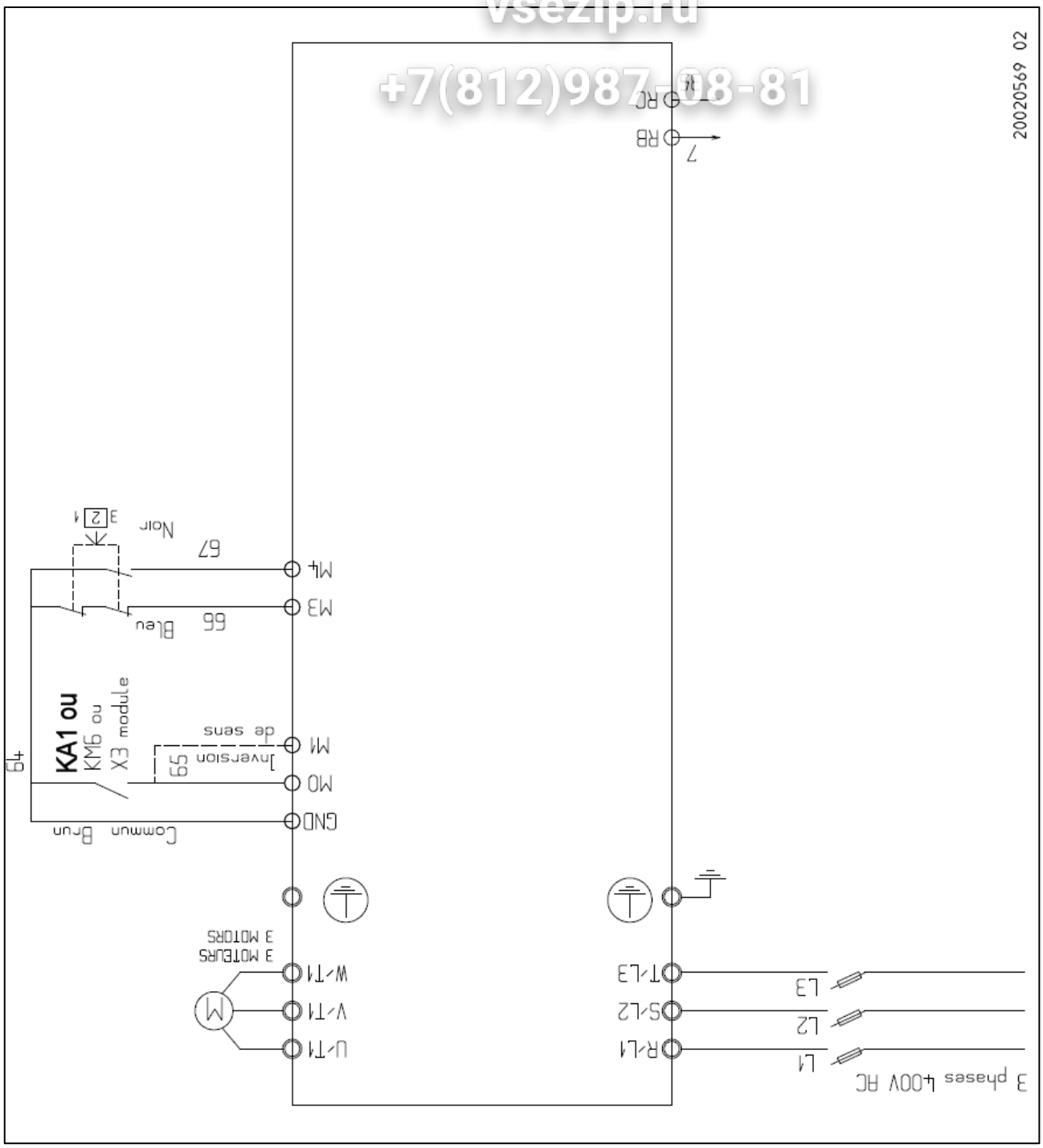
## 7.5. OIL/GAS FM1/2 POWER DISTRIBUTION DIAGRAM WITH SPEED VARIATOR



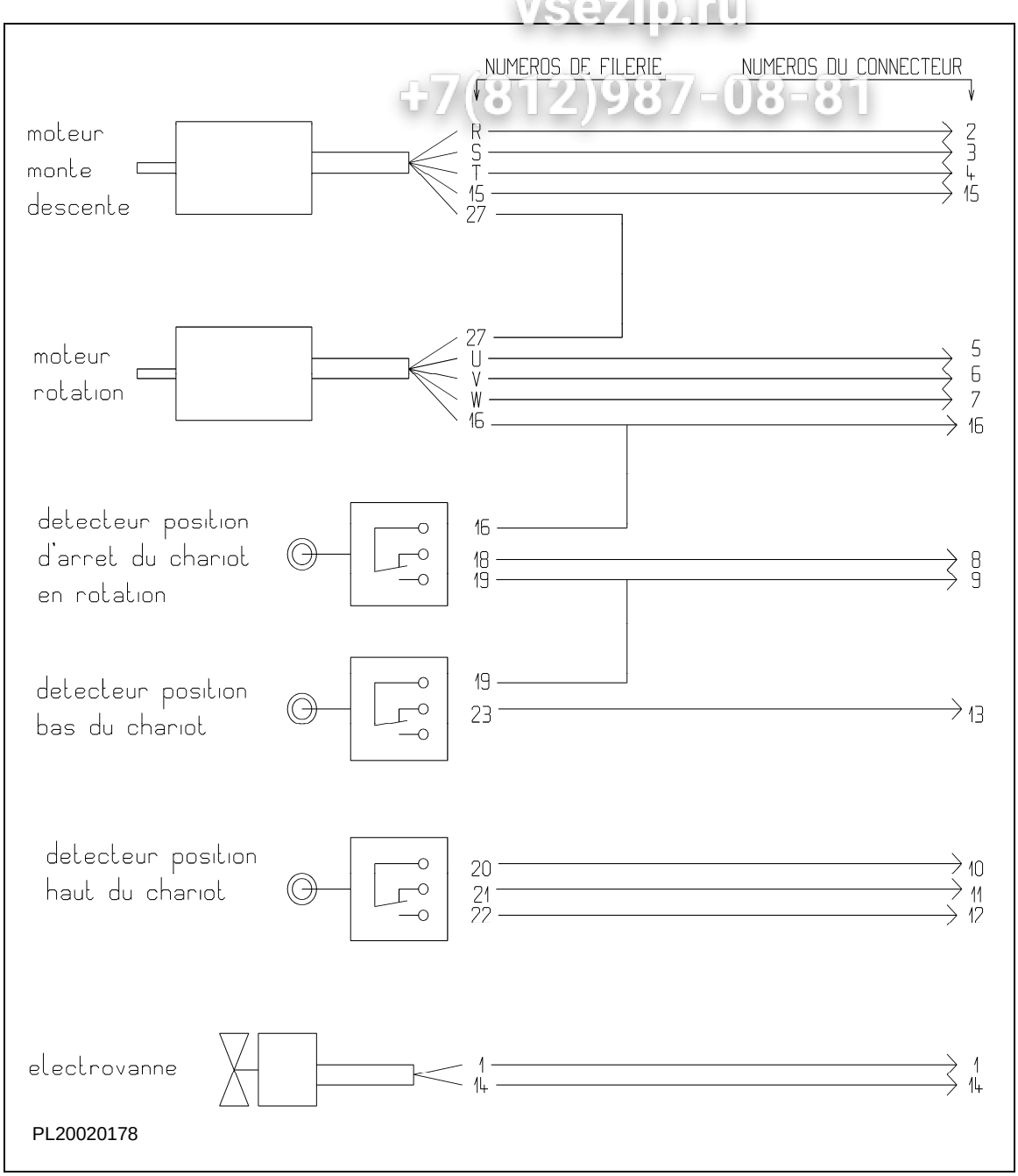
## 7.6. ELECTRIC FM1/2 POWER DISTRIBUTION DIAGRAM WITH SPEED VARIATOR



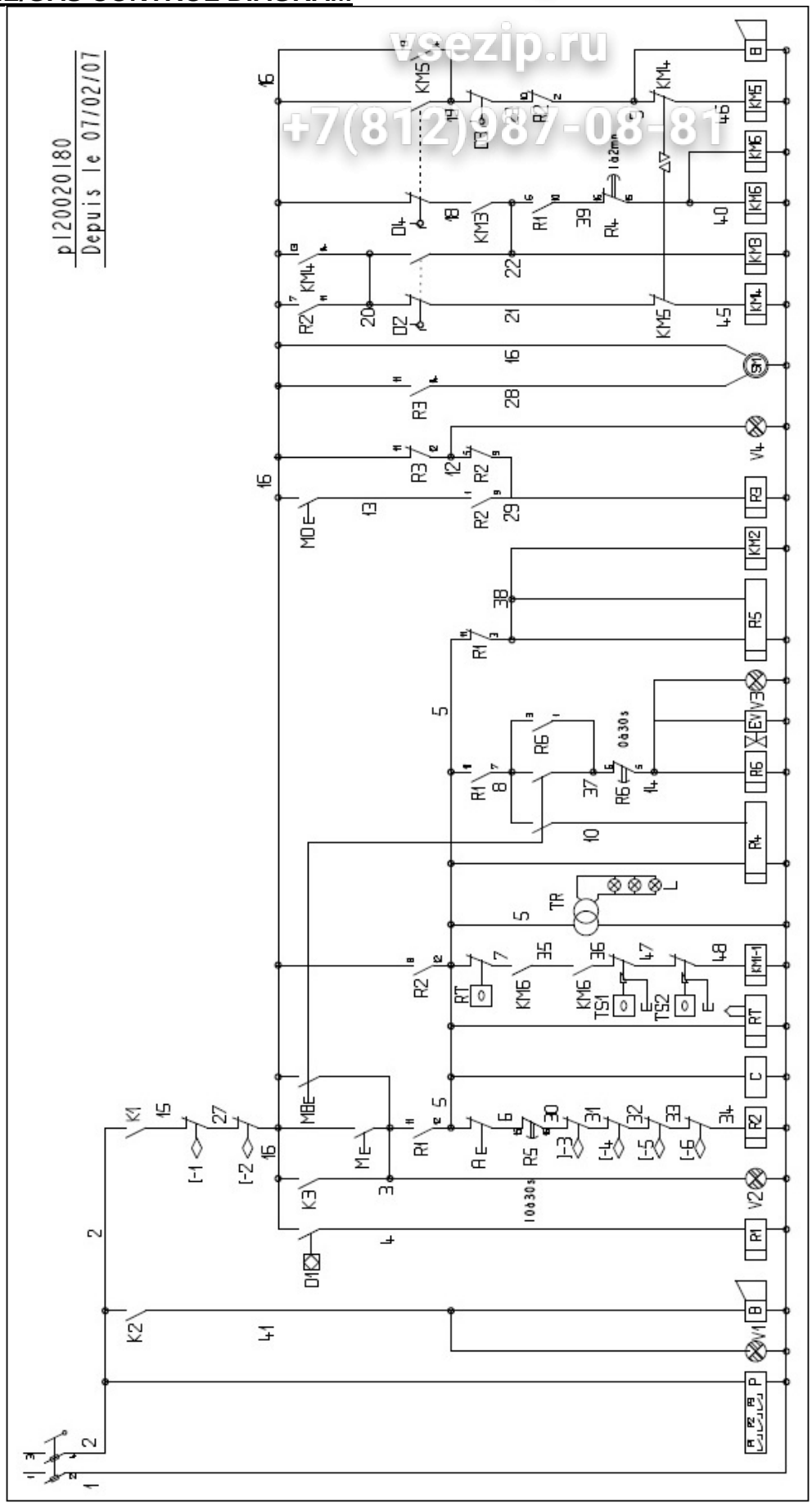
## 7.7. DELAT ELECTRIC VARIATOR



## ROOF DISTRIBUTION BOX WIRING



## 7.8. OIL/GAS CONTROL DIAGRAM



## OIL/GAS CONTROL DIAGRAM



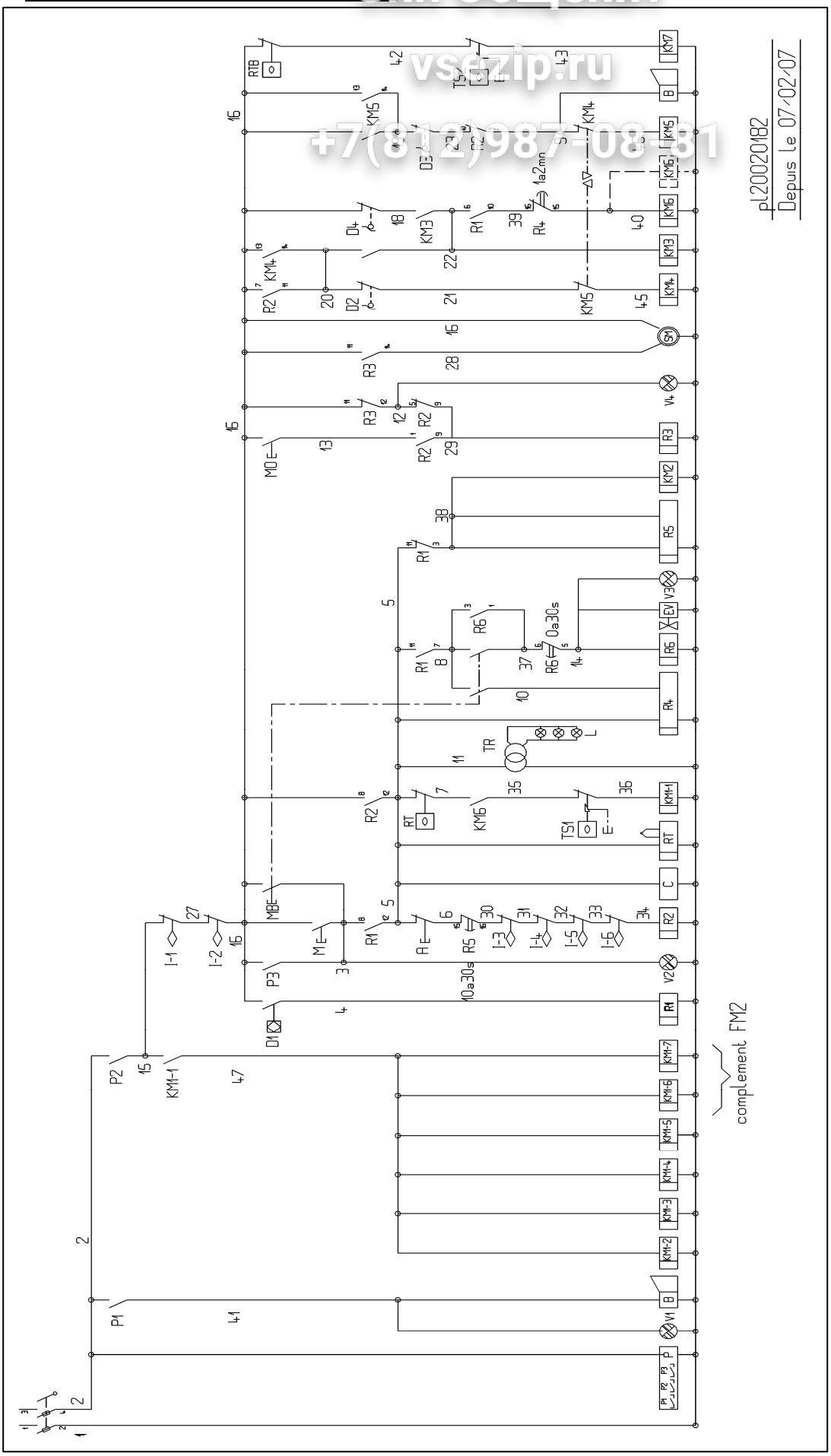
| | |
|---|---|
| M | Marche four sans buée |
| MB | Marche four avec buée |
| MO | Marche OURA (ouvert, fermé) |
| A | Arrêt four |
| P | Programmateur des temps de cuisson et différé |
| P1 | Contact de sortie cuisson programmateur |
| P2 | Contact de sortie différé programmateur |
| P3 | Contact de sortie impulsion programmateur |
| I-1 | Ipsotherme de protection moteur montée/descente chariot |
| I-2 | Ipsotherme de protection moteur rotation du chariot |
| I-3 | Ipsotherme de protection moteur extracteur de buée |
| I-4 | Ipsotherme de protection moteur turbine ventilation haute |
| I-5 | Ipsotherme de protection moteur turbine ventilation milieu |
| I-6 | Ipsotherme de protection moteur turbine ventilation basse |

| | |
|---|---|
| R1 | Relais de présence porte |
| R2 | Relais marche du four |
| R3 | Télérupteur d'ouverture fermeture du OURA |
| R4 | Relais temporise d'arrêt des turbines ventilation |
| R5 | Relais temporise d'arrêt four |
| R6 | Relais temporise d'injection de buée |
| KM1-1 | Contacteur de chauffe du four |
| KM2 | Contacteur de l'extracteur des buées |
| KM3 | Contacteur de rotation du chariot du four |
| KM4 | Contacteur de montée du chariot du four |
| KM5 | Contacteur de descente du chariot du four |
| KM6 | Contacteur des turbines ventilation four |
| TS-1 | Thermostat de sécurité du four |
| TS-2 | Thermostat des fumées du four |
| S | Sonnerie de défaut du brûleur |

| | |
|---|---|
| D1 | Détecteur inductif présence de porte |
| D2 | Détecteur de position haute du chariot |
| D3 | Détecteur de position basse du chariot |
| D4 | Détecteur de rotation du chariot |
| V1 | Voyant jaune de fin de cuisson |
| V2 | Voyant marche du four |
| V3 | Voyant d'injection de buée |
| V4 | Voyant d'ouverture du OURA |
| TR | Transfo d'éclairage |
| L | Lampe halogène |
| RT | Régulateur de température du four |
| B | Buzzer 2 tons (cuisson, descente chariot) |
| C | Compteur horaire |
| SM | Servomoteur OURA |

## 7.9. ELECTRIC CONTROL DIAGRAM





## ELECTRIC CONTROL DIAGRAM



| | |
|---|---|
| M | Marche four sans buée |
| MB | Marche four avec buée |
| MO | Marche OURA (ouvert, fermé) |
| A | Arrêt four |
| P | Programmateur des temps de cuisson et différé |
| P1 | Contact de sortie cuisson programmateur |
| P2 | Contact de sortie différé programmateur |
| P3 | Contact de sortie impulsion programmateur |
| I-1 | Ipsotherme de protection moteur montée/descente chariot |
| I-2 | Ipsotherme de protection moteur rotation du chariot |
| I-3 | Ipsotherme de protection moteur extracteur de buée |
| I-4 | Ipsotherme de protection moteur turbine ventilation haute |
| I-5 | Ipsotherme de protection moteur turbine ventilation milieu |
| I-6 | Ipsotherme de protection moteur turbine ventilation basse |
| R1 | Relais de présence porte |
| R2 | Relais marche du four |
| R3 | Télérupteur d'ouverture fermeture du OURA |
| R4 | Relais temporise d'arrêt des turbines ventilation |
| R5 | Relais temporise d'arrêt four |
| R6 | Relais temporise d'injection de buée |
| KM1-1 | Contacteur n°1 de chauffe du four |
| KM1-2 | Contacteur n°2 de chauffe du four |
| KM1-3 | Contacteur n°3 de chauffe du four |
| KM1-4 | Contacteur n°4 de chauffe du four |
| KM1-5 | Contacteur n°5 de chauffe du four |
| KM1-6 | Contacteur n°6 de chauffe du four M2-M3 |
| KM1-7 | Contacteur n°7 de chauffe du four M2-M3 |
| D1 | Détecteur inductif présence de porte |
| D2 | Détecteur de position haute du chariot |
| D3 | Détecteur de position basse du chariot |
| D4 | Détecteur de rotation du chariot |
| V1 | Voyant jaune de fin de cuisson |
| V2 | Voyant marche du four |
| V3 | Voyant d'injection de buée |
| V4 | Voyant d'ouverture du OURA |
| TR | Transfo d'éclairage |
| L | Lampe halogène |
| RT | Régulateur de température du four |
| B | Buzzer 2 tons (cuisson, descente chariot) |
| SM | Servomoteur OURA |
| C | Compteur horaire |
| TS-1 | Thermostat de sécurité du four |
| KM1-8 | Contacteur n°8 de chauffe du four M3 |
| KM1-9 | Contacteur n°9 de chauffe du four M3 |
| KM1-10 | Contacteur n°10 de chauffe du four M3 |
| KM2 | Contacteur de l'extracteur des buées |
| KM3 | Contacteur de rotation du chariot du four |
| KM4 | Contacteur de montée du chariot du four |
| KM5 | Contacteur de descente du chariot du four |
| KM6 | Contacteur des turbines ventilation du four |



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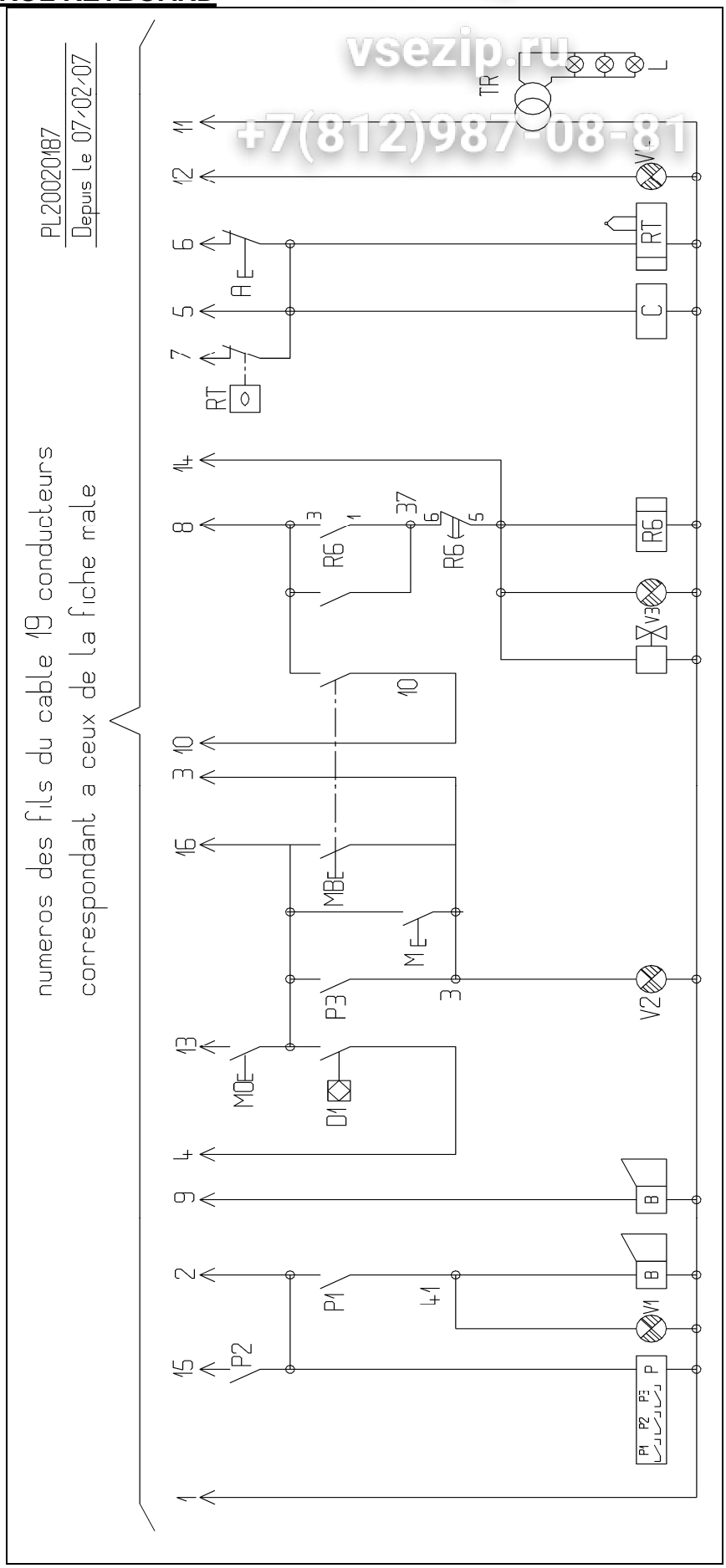
26800 Portes-Lès-Valence – France

## 7.10. CONTROL KEYBOARD

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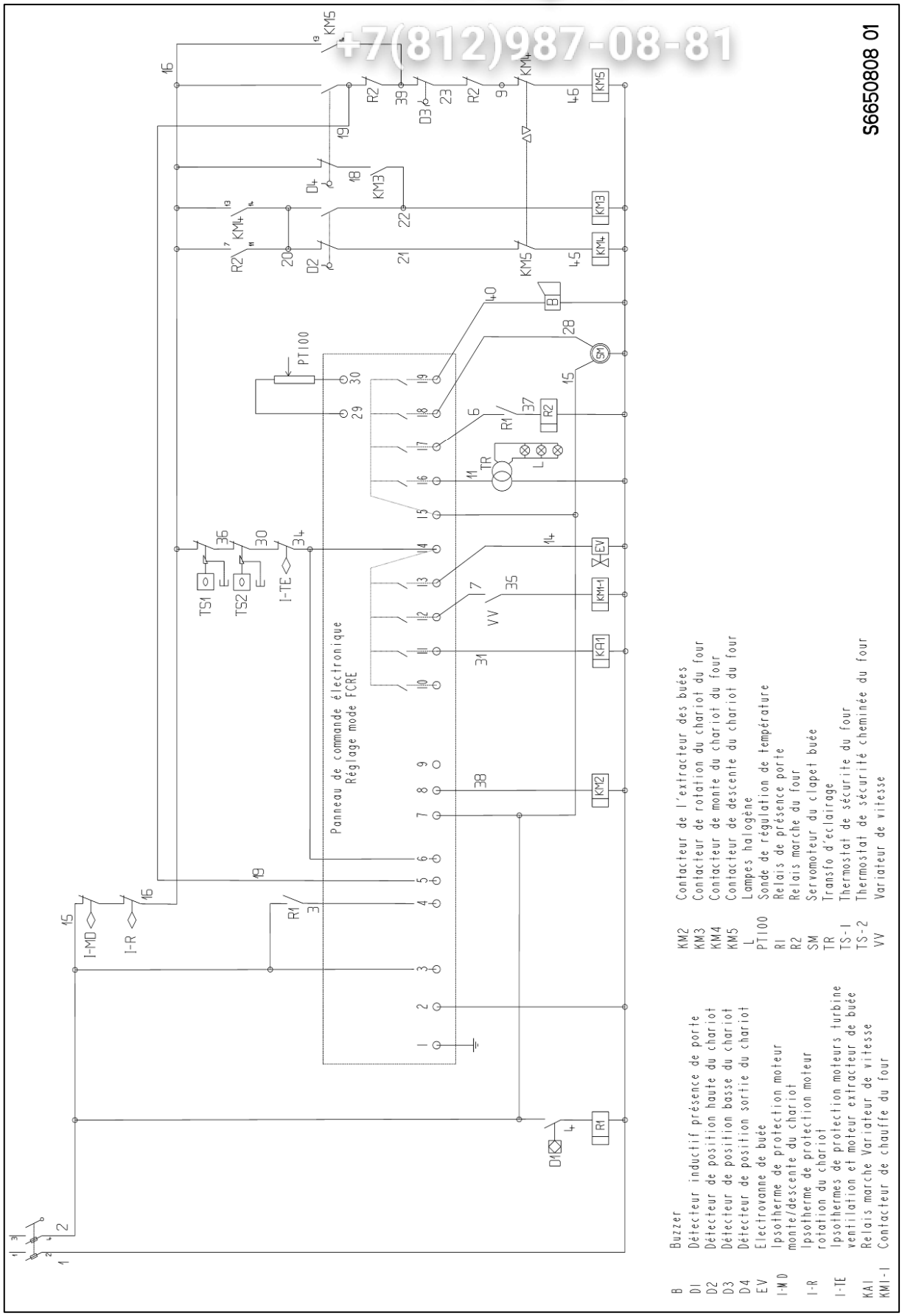
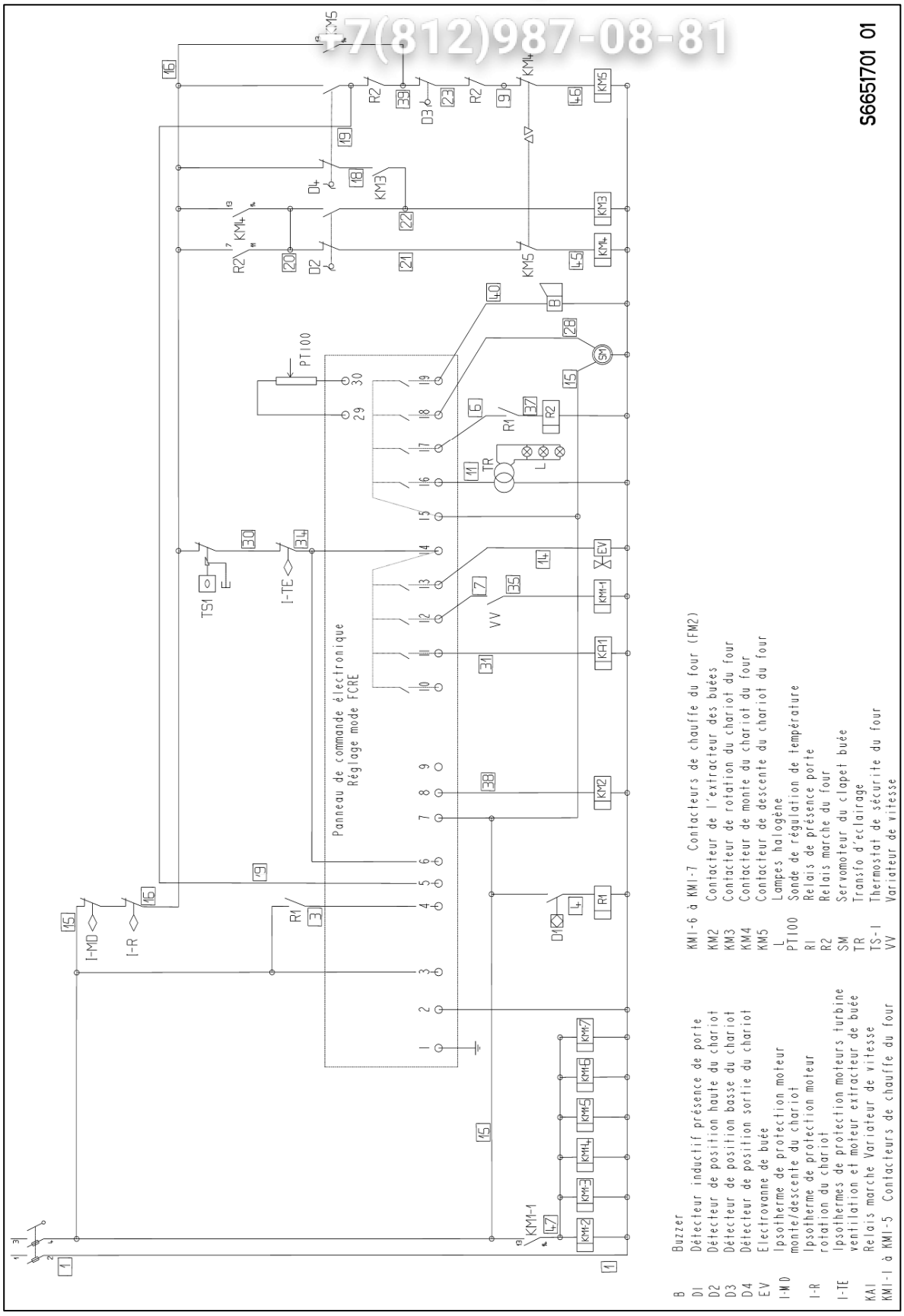
| | | | |
|---|---|---|---|
| R6 | Relais temporisé d'injection de buée | D1 | Détecteur inductif présence de porte |
| S | Sonnerie de défaut du brûleur | V1 | Voyant jaune de fin de cuisson |
| M | Marche four sans buée | V2 | Voyant marche du four |
| MB | Marche four avec buée | V3 | Voyant d'injection de buée |
| MO | Marche OURA (ouvert, fermé) | V4 | Voyant d'ouverture du OURA |
| A | Arrêt four | L | Lampe halogène |
| P1 | Contact de sortie cuisson programmateur | RT | Régulateur de température du four |
| P2 | Contact de sortie différé programmateur | B | Buzzer 2 tons (cuisson, descente chariot) |
| P3 | Contact de sortie impulsion programmateur | C | Compteur horaire |

## 7.11. OIL/GAS CONTROL DIAGRAM WITH PROTOUCH AND SPEED VARIATOR

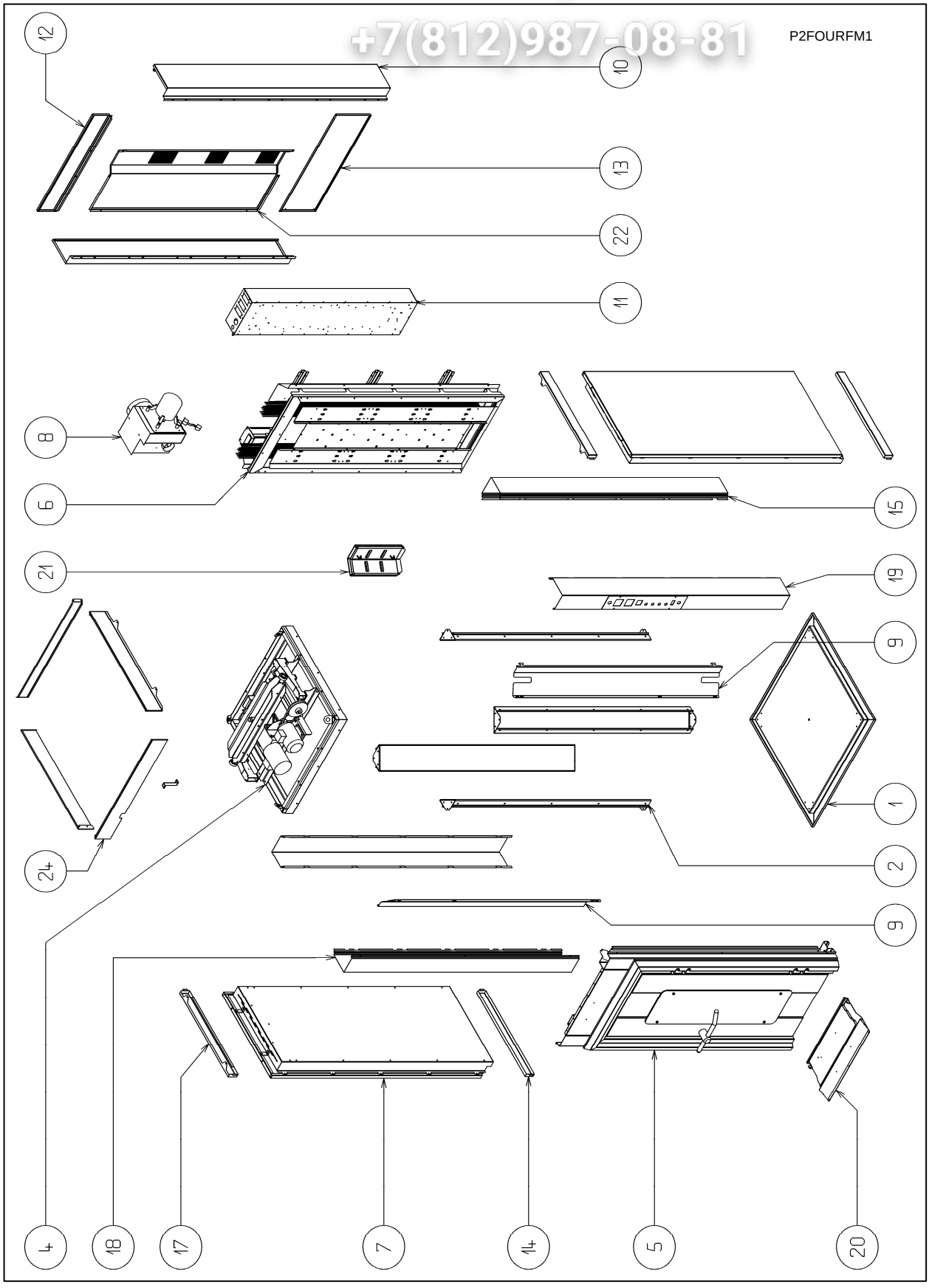


## 7.12. ELECTRIC CONTROL DIAGRAM WITH PROTOUCH AND SPEED VARIATOR



# 8. PARTS LIST

## 8.1. ELECTRIC OVEN GENERAL PARTS LIST



**Electric oven**

| Rep. | Désignation | | | M1 | M2 |
|---|---|---|---|---|---|
| 1 | Plancher | | | AF220005151 | AF220005051 |
| 2 | Pilier | | | AF220005176 | AF220005054 |
| 4 | Plafond | Porte droite | 400V | AF220005611 | AF220005612 |
| | | | 208/230V | AF220006590 | AF220006591 |
| | | Porte gauche | 400V | AF220014591 | AF220014593 |
| | | | 208/230V | AF220014590 | AF220014592 |
| 5 | Bloc porte | | droit | AF220005600 | AF220005601 |
| | | | gauche | AF220014520 | AF220014540 |
| 6 | Bloc chauffe | | 50Hz | AF220005607 | AF220005608 |
| | | | 60Hz | AF220006650 | AF220006651 |
| 7 | Panneau | | | AF220005192 | AF220005135 |
| 8 | Extracteur | | | AF220005604 | AF220005605 →10/00 |
| | | | | | 11/00→ AF220006670 |
| 9 | Tôle calorifuge avant | | | AF220005439 | AF220005446 |
| 10 | Jaquette latérale | | | AF220005687 | AF220005688 |
| 11 | Coffret électrique | | 400 V | AF220005731 | AF220005733 |
| | | | 208/230V | AF220005732 | AF220005734 |
| 12 | Traverse arrière haute | | | AF220005690 | AF220005691 |
| 13 | Traverse arrière basse | | | AF220005692 | AF220005693 |
| 14 | Plinthe | | | AF220005183 | AF220005120 |
| 15 | Angle arrière | | | AF220005199 | AF220005121 |
| 17 | Bandeau | | | AF220005184 | AF220005122 |
| 18 | Angle avant | | | AF220005148 | AF220005124 |
| 19 | Angle avant droit câblé | | 50 Hz | AF220005715 | AF220005726 |
| | | | 60 Hz | AF220005782 | AF220005783 |
| | Angle avant gauche câblé | | 50 Hz | AF220005737 | AF220005738 |
| | | | 60 Hz | AF220005785 | AF220005786 |
| 20 | Pan incliné | | Porte droite | AF220005626 | AF220005627 |
| | | | Porte gauche | AF220014500 | AF220014506 |
| 21 | Boîte à buée | | | AF220005668 | AF220005670 |
| 22 | Jaquette arrière | | | AF220005699 | AF220005128 |
| 24 | Ceinture supérieure | | | | |
| | **COMPRENANT** | | | | |
| | Ceinture avant | | Porte droite | AF220005655 | AF220005658 |
| | | | Porte gauche | AF220014580 | AF220014581 |
| | Ceinture latérale | | | AF220005656 | AF220005659 |
| | Ceinture arrière | | | AF220005657 | AF220005660 |
| | Support | | | AF220005664 | AF220005664 |



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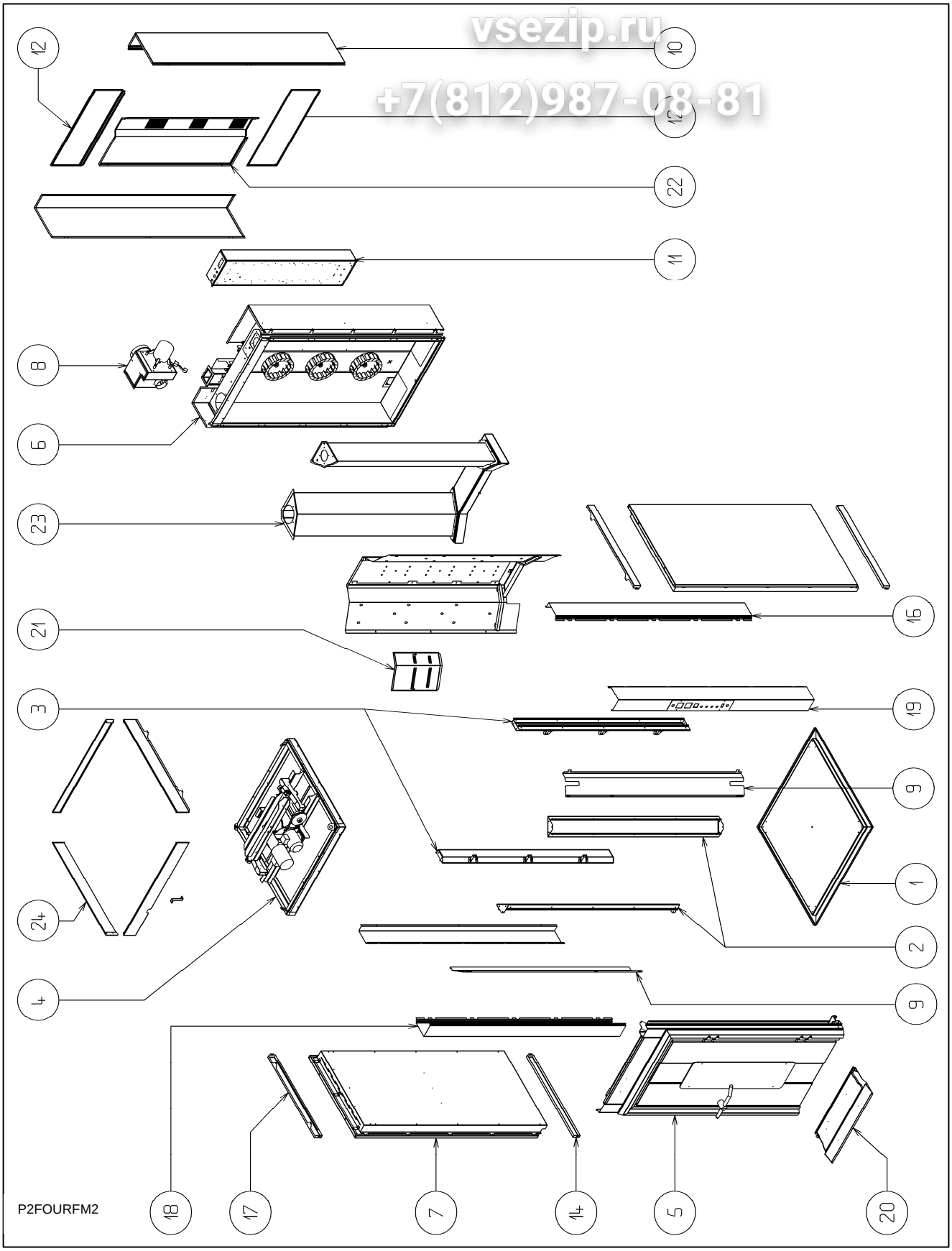
26800 Portes-Lès-Valence – France

## 8.2. OIL/GAS OVEN REAR PARTS LIST





## Oil/gas oven rear

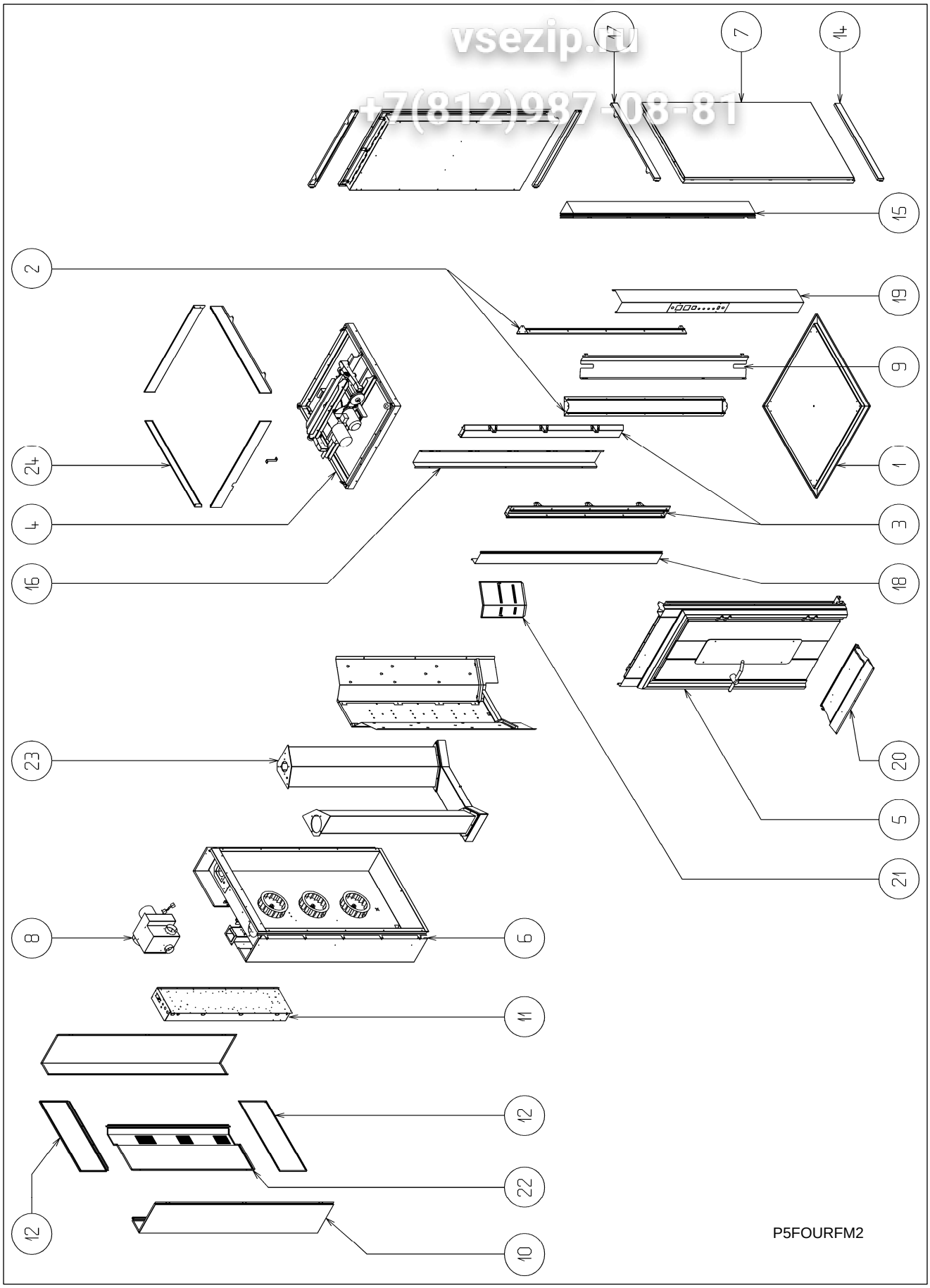
| Rep. | Désignation | | | M1 | M2 |
|---|---|---|---|---|---|
| 1 | Plancher | | | AF220005151 | AF220005051 |
| 2 | Pilier standard | | | AF220005[illegible]7c | AF220005054 |
| 3 | Pilier Mazout/Gaz | | | AF220005470 | AF220005471 |
| 4 | Plafond | Porte droite | 400V | AF220005611 | AF220005612 |
| | | | 208/230V | AF220006590 | AF220006591 |
| | | Porte gauche | 400V | AF220014591 | AF220014593 |
| | | | 208/230V | AF220014590 | AF220014592 |
| 5 | Bloc porte | | Droit | AF220005600 | AF220005601 |
| | | | Gauche | AF220014520 | AF220014540 |
| 6 | Bloc chauffe | | 50Hz | AF220005615 | AF220005616 |
| | | | 60Hz | AF220006655 | AF220006656 |
| 7 | Panneau | | | AF220005192 | AF220005135 |
| 8 | Extracteur | | | AF220005604 | AF220005605 →10/00 |
| | | | | | 11/00→ AF220006670 |
| 9 | Tôle calorifuge avant | | | AF220005439 | AF220005446 |
| 10 | Jaquette latérale bloc chauffe | | | AF220005694 | AF220005695 |
| 11 | Coffret électrique | | 400V | AF220005729 | AF220005729 |
| | | | 208/230V | AF220005730 | AF220005730 |
| 12 | Traverse arrière bloc chauffe | | | AF220005697 | AF220005698 |
| 14 | Plinthe | | | AF220005183 | AF220005120 |
| 16 | Angle arrière Mazout/Gaz | | | AF220005570 | AF220005585 |
| 17 | Bandeau | | | AF220005184 | AF220005122 |
| 18 | Angle avant | | | AF220005148 | AF220005124 |
| 19 | Angle avant droit câblé | | 50 Hz | AF220005715 | AF220005726 |
| | | | 60 Hz | AF220005782 | AF220005783 |
| | Angle avant gauche câblé | | 50 Hz | AF220005737 | AF220005738 |
| | | | 60 Hz | AF220005785 | AF220005786 |
| 20 | Pan incliné | Porte droite | | AF220005626 | AF220005627 |
| | | Porte gauche | | AF220014500 | AF220014506 |
| 21 | Boîte à buée | | | AF220005669 | GA AF220005671 |
| | | | | | DR AF220005672 |
| 22 | Jaquette arrière bloc chauffe | | | AF220005699 | AF220005699 |
| 23 | Echangeur | | | AF220005619 | AF220005620 |
| 24 | Ceinture supérieure | | | | |
| | **COMPRENANT** | | | | |
| | Ceinture avant | Porte droite | | AF220005655 | AF220005658 |
| | | Porte gauche | | AF220014580 | AF220014581 |
| | Ceinture latérale | | | AF220005656 | AF220005659 |
| | Ceinture arrière | | | AF220005657 | AF220005660 |
| | Support | | | AF220005664 | AF220005664 |



Pavailler
26800 Portes-Lès-Valence – France

## 8.3. GENERAL PARTS LIST FOR GAS OVEN SIDE





**Oil/gas oven side**

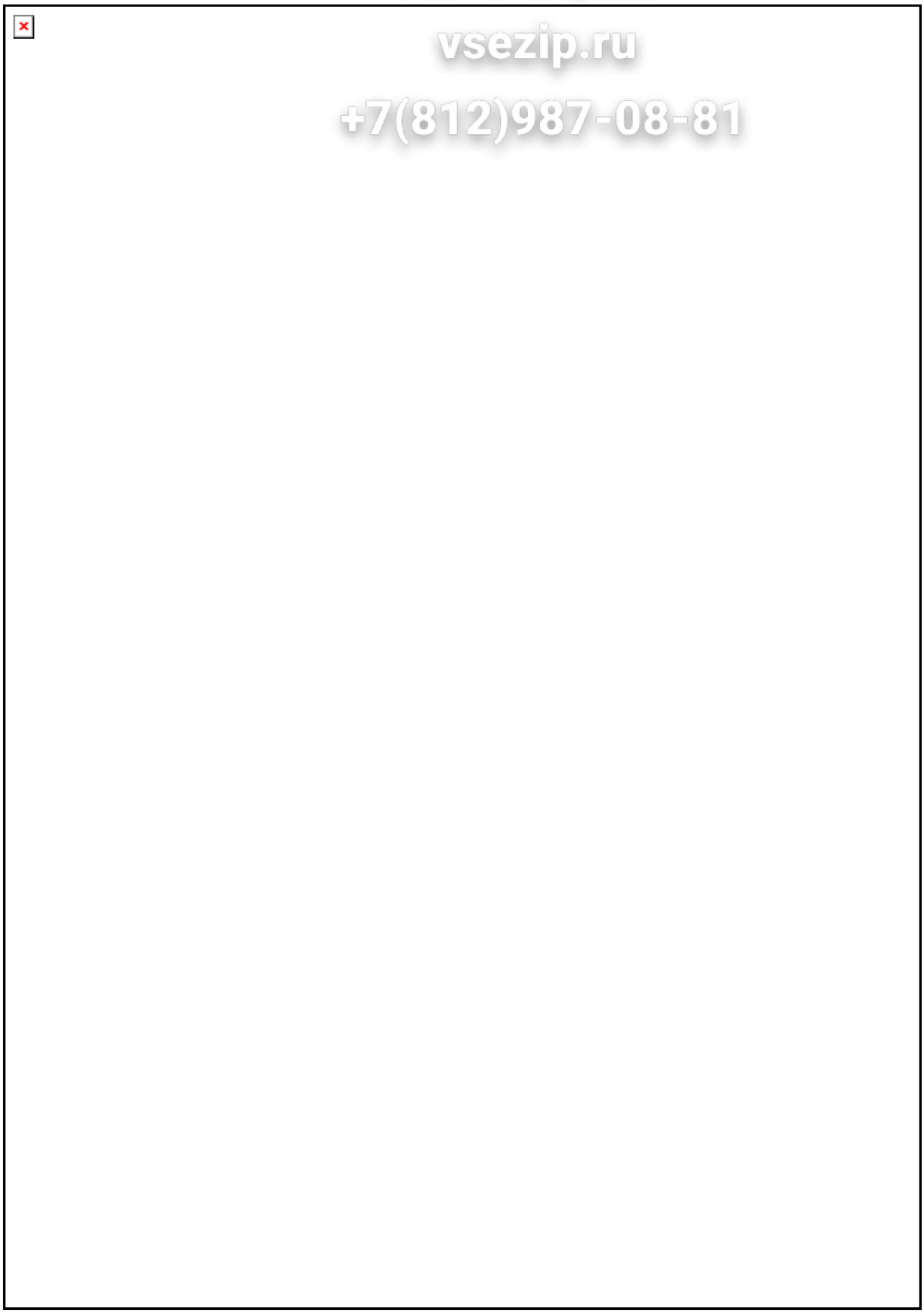


| Rep. | Désignation | | | M1 | M2 |
|---|---|---|---|---|---|
| 1 | Plancher | | | AF220005151 | AF220005051 |
| 2 | Pilier standard | | | AF220005176 | AF220005054 |
| 3 | Pilier Mazout/Gaz | | | AF220005470 | AF220005471 |
| 4 | Plafond | Porte droite | 400V | AF220005611 | AF220005612 |
| | | | 208/230V | AF220006590 | AF220006591 |
| | | Porte gauche | 400V | AF220014591 | AF220014593 |
| | | | 208/230V | AF220014590 | AF220014592 |
| 5 | Bloc porte | | droit | AF220005600 | AF220005601 |
| | | | gauche | AF220014520 | AF220014540 |
| 6 | Bloc chauffe | | 50Hz | AF220005615 | AF220005616 |
| | | | 60Hz | AF220006655 | AF220006656 |
| 7 | Panneau | | | AF220005192 | AF220005135 |
| 8 | Extracteur | | | AF220005604 | AF220005605 →10/00 |
| | | | | | 11/00→ AF220006670 |
| 9 | Tôle calorifuge avant | | | AF220005439 | AF220005446 |
| 10 | Jaquette latérale bloc chauffe | | | AF220005694 | AF220005695 |
| 11 | Coffret électrique | | 400V | AF220005729 | AF220005729 |
| | | | 208/230V | AF220005730 | AF220005730 |
| 12 | Traverse arrière bloc chauffe | | | AF220005697 | AF220005698 |
| 14 | Plinthe | | | AF220005183 | AF220005120 |
| 15 | Angle arrière | | | AF220005199 | AF220005121 |
| 16 | Angle arrière Mazout/Gaz | | | AF220005570 | AF220005585 |
| 17 | Bandeau | | | AF220005184 | AF220005122 |
| 18 | a) Angle avant Mazout/Gaz | | | AF220005587 | AF220005572 |
| | b) Angle avant GAU câblé | | 50 Hz | AF220005737 | AF220005738 |
| | | | 60 Hz | AF220005785 | AF220005786 |
| 19 | a) Angle avant DROIT câblé | | 50 Hz | AF220005715 | AF220005726 |
| | | | 60 HZ | AF220005782 | AF220005783 |
| | b) Angle avant Mazout/Gaz | | | AF220005587 | AF220005572 |
| 20 | Pan incliné | Porte droite | | AF220005626 | AF220005627 |
| | | Porte gauche | | AF220014500 | AF220014506 |
| 21 | Boite à buée | | | AF220005669 | GA AF220005671 |
| | | | | | DR AF220005672 |
| 22 | Jaquette arrière bloc chauffe | | | AF220005699 | AF220005699 |
| 23 | Echangeur | | | AF220005619 | AF220005620 |
| 24 | Ceinture supérieure | | | | |
| | **COMPRENANT** | | | | |
| | Ceinture avant | Porte droite | | AF220005655 | AF220005658 |
| | | Porte gauche | | AF220014580 | AF220014581 |
| | Ceinture latérale | | | AF220005656 | AF220005659 |
| | Ceinture arrière | | | AF220005657 | AF220005660 |
| | Support | | | AF220005664 | AF220005664 |

**Note:** a) Heating unit on the left
b) Heating unit on the right

## 8.4. ROOF PARTS LIST 1/3





**Roof parts list 1/3**

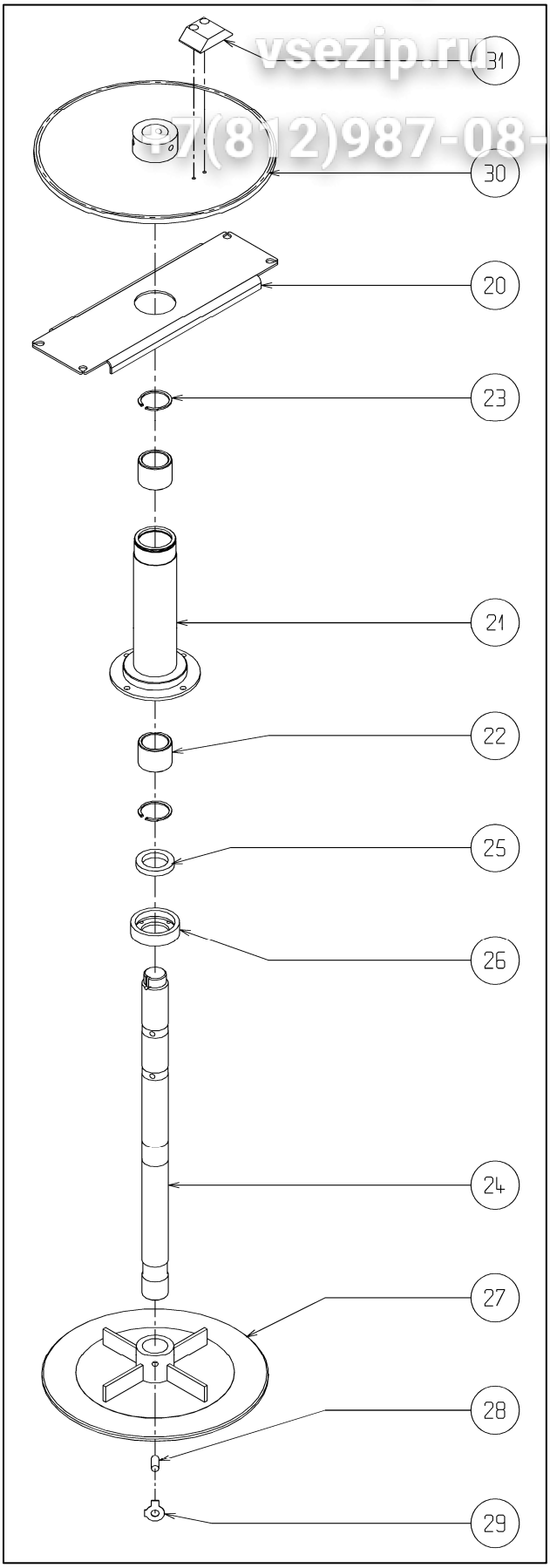


| Rep. | Désignation | | | M1 | M2 |
|---|---|---|---|---|---|
| | Plafond monté | Porte droite | 400V | | Plafond monté |
| | | | 208/230V | | |
| | | Porte gauche | 400V | | |
| | | | 208/230V | | |
| | **Planche 1** | | | | |
| | **COMPRENANT** | | | | |
| 1 | Plafond soudé | | | AF220005155 | AF220005057 |
| 2 | Longeron support mécanique | | | AF220005167 | AF220005080 |
| 3 | Canne relevage | | | AF220005086 | AF220005086 |
| 4 | Support moto-réducteur | | | AF220005092 | AF220005092 |
| 5 | Moto-réducteur Rossi * =>12 2006 | | | AF220005003 | AF220005003 |
| | Moto-réducteur Bonfiglioli 01 2007=>... | | | AF220014645 | AF220014645 |
| 6 | Pignon moteur rotation | | | AF220005004 | AF220005004 |
| 7 | Renfort moto-réducteur | | | AF220005404 | AF220005404 |
| 8 | Moteur relevage | | | AF200033920 | AF200033920 |
| 9 | Poulie motrice relevage | | | AF220005015 | AF220005015 |
| 10 | Courroie | | | AF200011744 | AF200011744 |
| 11 | Joint angle | | | AF220005527 | AF220005527 |
| 12 | Entretoise motoreducteur 08 2006=>... | | | AF220014652 | AF220014652 |

*To replace a Rossi gear motor with a Bonfiglioli gear motor, replace the gear motor mounts 20005092, 20005404 and add 5 spacers 20014652

## 8.5. ROOF PARTS LIST 2/3






P220005611

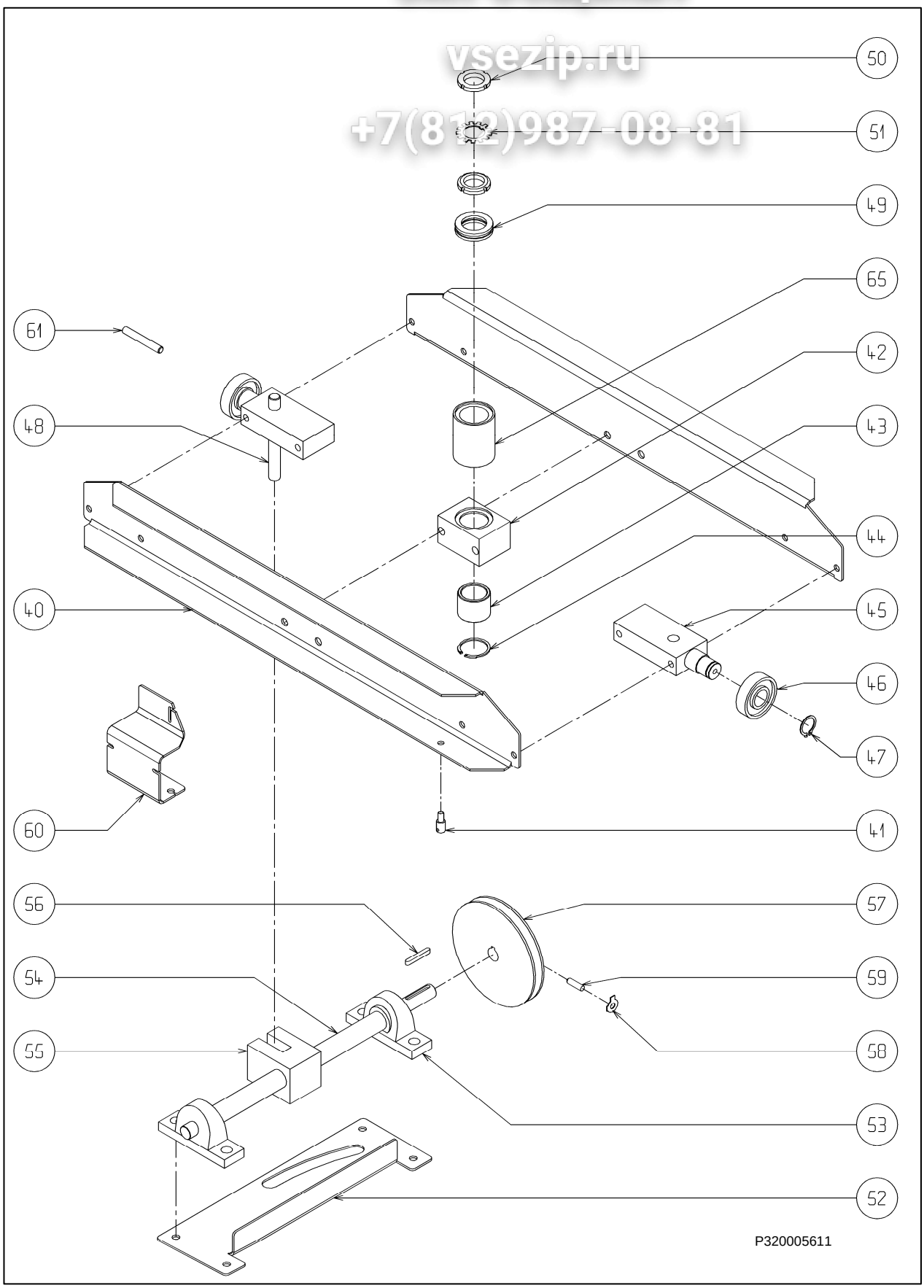
**Roof parts list 2/3**



| Rep. | Désignation | M1 | M2 |
|---|---|---|---|
| | **planche 2** | | |
| 20 | Support palier arbre rotation | AF220005081 | AF220005081 |
| 21 | Palier arbre rotation | AF220005001 | AF220005001 |
| 22 | Bague bronze | AF220005036 | AF220005036 |
| 23 | Circlips | AF200015399 | AF200015399 |
| 24 | Arbre rotation | AF220005000 | AF220005000 |
| 25 | Tresse étanchéité | AF220005017 | AF220005017 |
| 26 | Presse étoupe | AF220005002 | AF220005002 |
| 27 | Plateau support chariot | AF200007332 | AF200007332 |
| 28 | Vis pointeau | AF200032919 | AF200032919 |
| 29 | Rondelle frein | AF200032934 | AF200032934 |
| 30 | Roue 105 dents | AF220005041 | AF220005041 |
| 31 | Pion détection rotation | AF220005486 | AF220005486 |

## 8.6. ROOF PARTS LIST 3/3





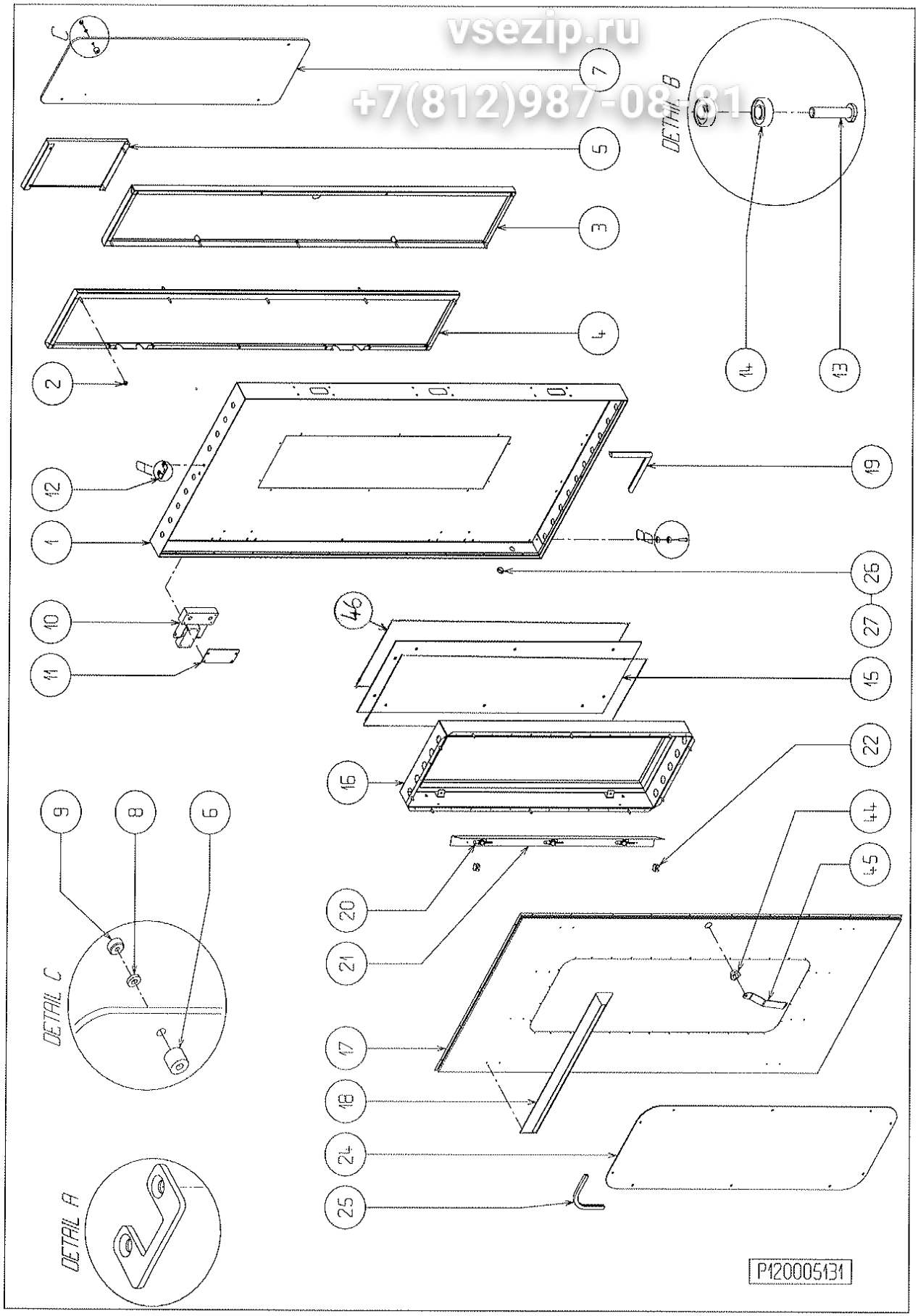
**Room parts list 3/3**



| Rep. | Désignation | | M1 | M2 |
|---|---|---|---|---|
| | **planche 3** | | | |
| 40 | Palonnier | | AF220005085 | AF220005085 |
| 41 | Axe Câble palonnier | | AF220005049 | AF220005049 |
| 42 | Moyeu palonnier | | AF220005006 | AF220005006 |
| 43 | Bague bronze | | AF220005036 | AF220005036 |
| 44 | Circlips | | AF200015399 | AF200015399 |
| 45 | Embout palonnier | | AF220005008 | AF220005008 |
| 46 | Roulement | | AF220002540 | AF220002540 |
| 47 | Circlips | | AF200032899 | AF200032899 |
| 48 | Axe commande palonnier | | AF220005009 | AF220005009 |
| 49 | Butée à bille | | AF200015201 | AF200015201 |
| 50 | Ecrou SKF | | AF200015602 | AF200015602 |
| 51 | Rondelle SKF | | AF200015603 | AF200015603 |
| 52 | Support vis-écrou | Porte droite | AF220005083 | AF220005083 |
| | | Porte gauche | AF220014597 | AF220014597 |
| 53 | Palier à semelle | | AF220005013 | AF220005013 |
| 54 | Vis commande palonnier | | AF220005011 | AF220005011 |
| 55 | Ecrou commande palonnier | | AF220005012 | AF220005012 |
| 56 | Clavette | | AF220005479 | AF220005479 |
| 57 | Poulie réceptive relevage | | AF220005016 | AF220005016 |
| 58 | Rondelle frein | | AF200032933 | AF200032933 |
| 59 | Vis pointeau | | AF200032830 | AF200032830 |
| 60 | Support détecteur rotation | | AF220005144 | AF220005144 |
| 61 | Axe arrêt palonnier FM | | AF220005569 | AF220005569 |
| | | | | |
| | Si cage d'écureuil | | | |
| 65 | Bague réhausse | | AF220005007 | AF220005007 |

## 8.7. DOOR UNIT PARTS LIST 1/3





## DOOR UNIT PARTS LIST 1/3

| Rep. | Désignation | | M1 | M2 |
|---|---|---|---|---|
| | **BLOC PORTE MONTE** | AF220005600 | AF220005601 | 20005601 |
| | | AF220014529 | AF220014540 | 20014540 |
| | **COMPRENANT** | | | |
| | **PORTE MONTEE** | AF220005189 | AF220005131 | 20005131 |
| | | AF220014535 | AF220014555 | 20014555 |
| | planche 1 | | | |
| 1 | Porte soudée | AF220005188 | AF220005130 | 20005130 |
| | | AF220014536 | AF220014556 | 20014556 |
| 2 | Rondelle isolation | | AF220005024 | AF220005024 |
| 3 | Panneau poignée | | AF220005382 | AF220005385 |
| 4 | Panneau charnière | | AF220005383 | AF220005386 |
| 5 | Panneau milieu | | AF220005384 | AF220005387 |
| 6 | Entretoise | | AF200019111 | AF200019111 |
| 7 | Vitre extérieure | | AF220005421 | AF220005421 |
| 8 | Rondelle silicone | | AF220005422 | AF220005422 |
| 9 | Ecrou moleté | | AF220005026 | AF220005026 |
| 10 | Charnière | | AF220005410 | AF220005410 |
| 11 | Renfort charnière | | AF220005066 | AF220005066 |
| 12 | Butée crochet | | AF220005111 | AF220005111 |
| 13 | Axe roulement | | AF220005034 | AF220005034 |
| 14 | Roulement | | AF200011890 | AF200011890 |
| 15 | Vitre intermédiaire | | AF220005420 | AF220005420 |
| 16 | Ancien cadre intér. porte →11/04 | | AF220005423 | AF220005423 |
| | Cadre intérieur porte 11/04 → | | AF220040004 | AF220040004 |
| 17 | Contre porte | | AF220005161 | AF220005065 |
| 18 | Protection joint | | AF220005292 | AF220005293 |
| 19 | Joint de porte | | AF220005031 | AF220005032 |
| 20 | Lampe halogène | | AF270035005 | AF270035005 |
| 21 | Tôle + lampe halogène 04/2007→ | | AF270035004 | AF270035004 |
| | Tube fluorescent → 04 /2007 | | AF200033304 Plus disponible kit de remplacement : AF0DEVI0106 | |
| 22 | Borne porcelaine | | AF200030409 | AF200030409 |
| - | | | | |
| 24 | Vitre intérieure | | AF220005419 | AF220005419 |
| 25 | Joint vitre intérieure | | AF220005259 | AF220005259 |
| 26 | Passe fil | | AF200033772 | AF200033772 |
| 27 | Ensemble Câble alimentation éclairage | | AF220005438 | AF220005438 |
| 44 | Rondelle de calage | | AF220005037 | AF220005037 |
| 45 | Poignée intérieure | AF220005118 | AF220005118 | 20005118 |
| | | AF220014584 | AF220014584 | 20014584 |
| 46 | Joint silicone 13 x 1.5 ht | | AF200031333 | AF200031333 |



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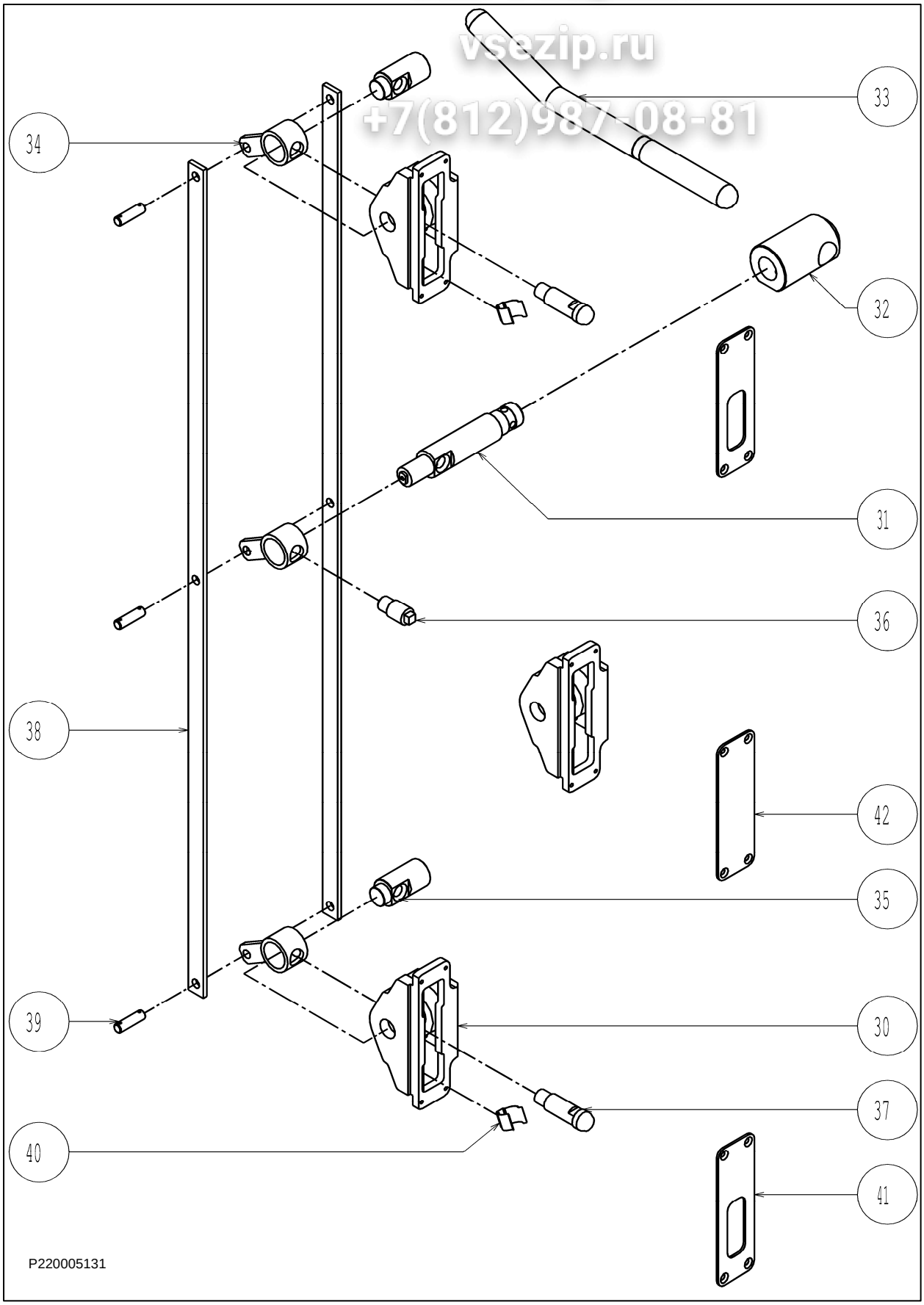
26800 Portes-Lès-Valence – France

## 8.8. DOOR UNIT PARTS LIST 2/3





## DOOR UNIT PARTS LIST 2/3

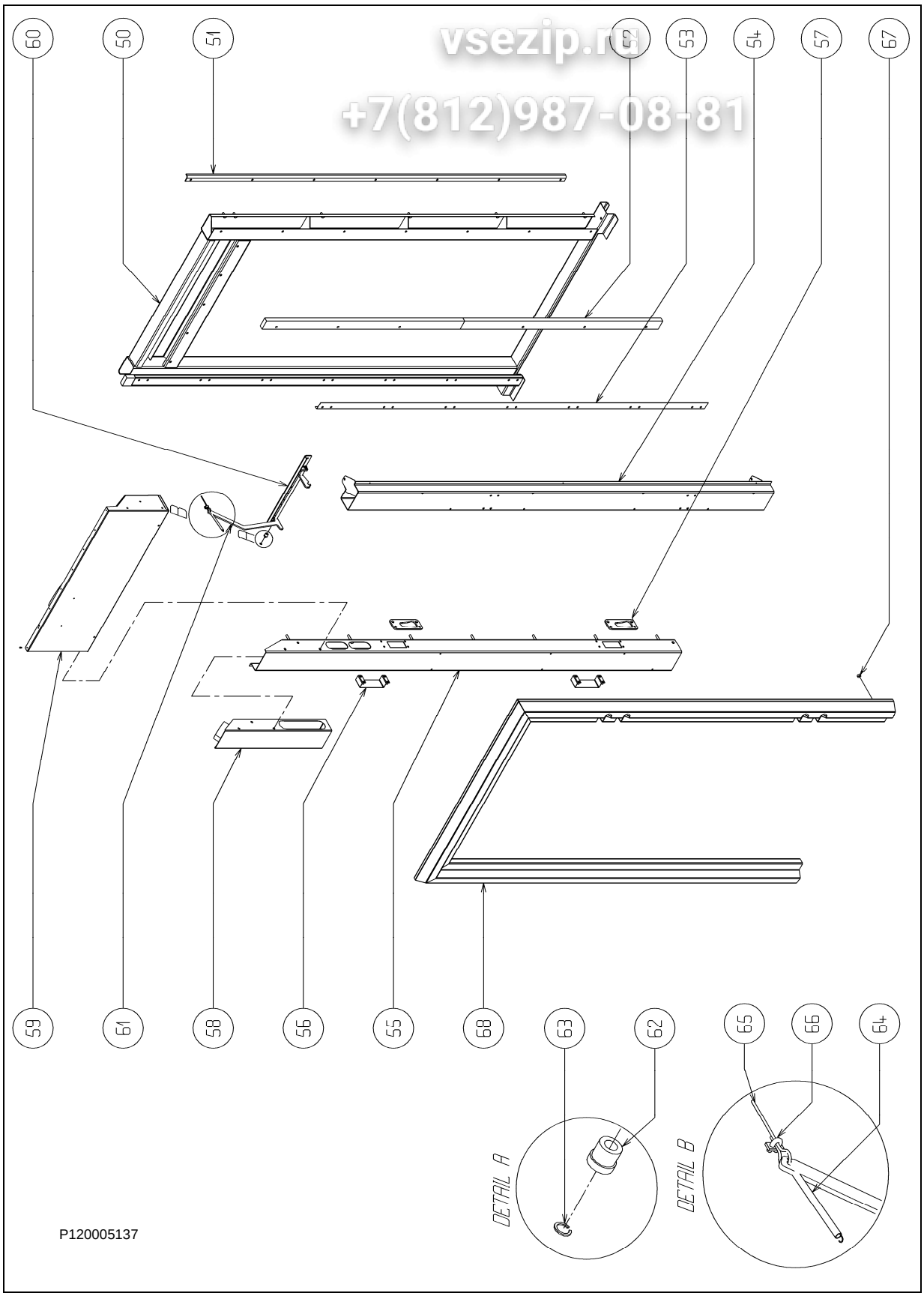
| Rep. | Désignation | M1 | M2 |
|---|---|---|---|
| 30 | Bloc verrou | AF220001080 | AF220001080 |
| 31 | Axe poignée | AF220005021 →11/04: AF220006071 | AF220005021 →11/04: AF220006071 |
| 32 | Axe extérieur poignée | AF220005035 | AF220005035 |
| 33 | Poignée | AF220005022 | AF220005022 |
| 34 | Bielle verrou | - | AF220011257 |
| 35 | Axe renvoi | - | AF220005483 |
| 36 | Axe verrou | - | AF220005482 |
| 37 | Pène | AF200007063 | AF200007063 |
| 38 | Biellette verrou | - | AF220005484 |
| 39 | Axe biellette | - | AF220005485 |
| 40 | Agrafe lyre | AF200001858 | AF200001858 |
| 41 | Contre plaque | AF200007064 | AF200007064 |
| 42 | Contre plaque centrale | - | AF220005271 |



Pavailler
26800 Portes-Lès-Valence – France

## 8.9. DOOR UNIT PARTS LIST 3/3



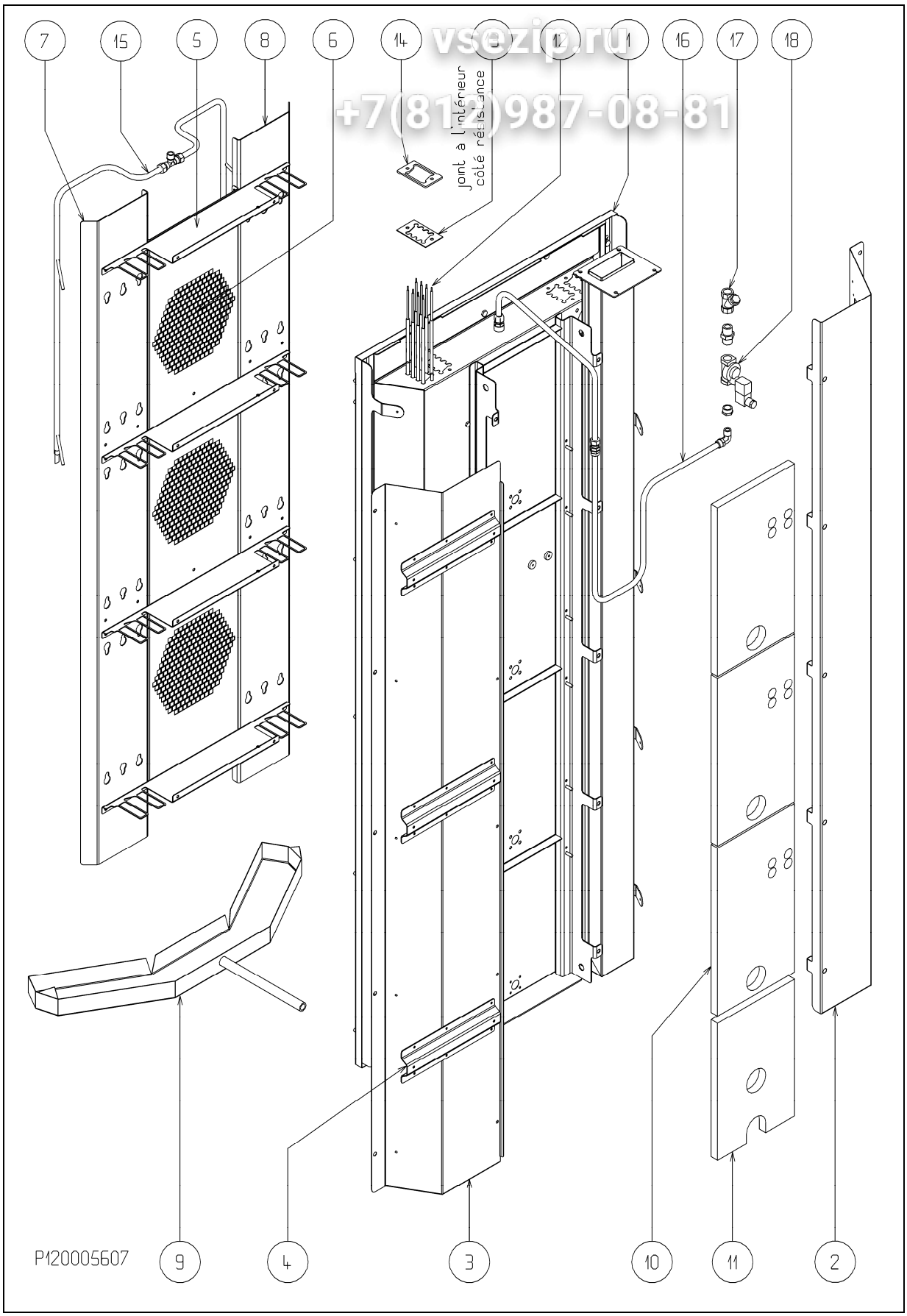


## Door unit parts list 3/3

| Rep. | Désignation | | M1 | M2 |
|---|---|---|---|---|
| | **CADRE PORTE MONTEE** | | AF220005187 | AF220005137 |
| | planche 3 | | | |
| | **COMPRENANT** | | | |
| 50 | Cadre porte soudé | | AF220005166 | AF220005077 |
| 51 | Renfort montant | | AF220005117 | AF220005181 |
| 52 | Isolant cadre | | AF220005257 | AF220005258 |
| 53 | Cache isolant | | AF220005119 | AF220005408 |
| 54 | Montant droit | Porte droite | AF220005044 | AF220005078 |
| | | Porte gauche | AF220014522 | AF220014542 |
| 55 | Montant gauche | Porte droite | AF220005045 | AF220005079 |
| | | Porte gauche | AF220014524 | AF220014544 |
| 56 | Support gache | | AF220005469 | AF220005469 |
| 57 | Gache | | AF220001079 | AF220001079 |
| 58 | Boîte buée | Porte droite | AF220005436 | AF220005436 |
| | | Porte gauche | AF220014530 | AF220014530 |
| 59 | Fronton monté | Porte droite | AF220005147 | AF220005139 |
| | | Porte gauche | AF220014526 | AF220014546 |
| 60 | Support crochet | Porte droite | AF220005403 | AF220005403 |
| | | Porte gauche | AF220014585 | AF220014585 |
| 61 | Crochet | Porte droite | AF220005402 | AF220005402 |
| | | Porte gauche | AF220014538 | AF220014538 |
| 62 | Bague axe | | AF220005401 | AF220005401 |
| 63 | Circlips | | AF200032900 | AF200032900 |
| 64 | Ressort | | AF200037615 | AF200037615 |
| 65 | Câble | | AF220005496 | AF220005496 |
| 66 | Serre Câble | | AF220005497 | AF220005497 |
| 67 | Rondelle isolation | | AF220005024 | AF220005024 |
| 68 | Cadre extérieur porte | Porte droite | AF220005431 | AF220005430 |
| | | Porte gauche | AF220014532 | AF220014552 |

## 8.10. ELECTRIC HEATING UNIT





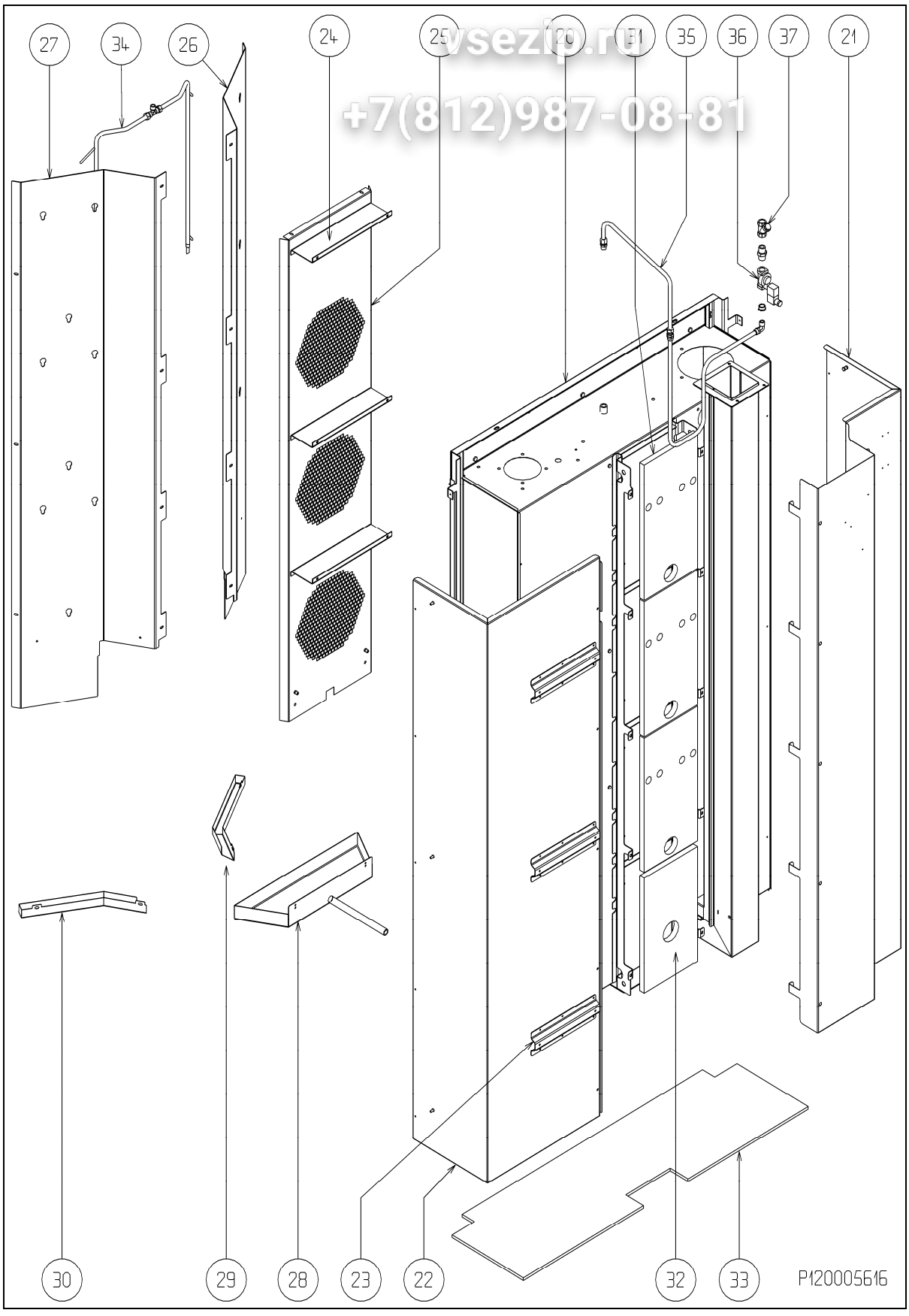
## Electric heating unit



| Rep. | Désignation | | M1 | M2 |
|---|---|---|---|---|
| | **BLOC MONTE ELECTRIQUE** | **50Hz** | AF220005607 | AF220005608 |
| | | **60Hz** | AF220006650 | AF220006651 |
| | Planche 1 | | | |
| | **COMPRENANT** | | | |
| 1 | Bloc soudé | | AF220005191 | AF220005134 |
| 2 | Tôle isolation droite | | AF220005178 | AF220005113 |
| 3 | Tôle isolation gauche (coffret) | | AF220005177 | AF220005112 |
| 4 | Traverse support coffret | | AF220005236 | AF220005236 |
| 5 | Cloison horizontale intérieure | | AF220005180 | AF220005116 |
| 6 | Tôle centrale aspiration | 50Hz | AF220005179 | AF220005114 |
| | | 60Hz | AF220006640 | AF220006641 |
| 7 - 8 | Volet aspiration | | AF220006504 | AF220006509 |
| 9 | Boîte trop plein | | AF220006532 -> SEP 2002<br>-> OCT 2002 AF220005675 | AF220006533 -> SEP 2002<br>-> OCT 2002 AF220005676 |
| 10 | Isolation arrière haute | | AF220005028 | AF220005266 |
| 11 | Isolation arrière basse | | AF220005029 | AF220005267 |
| 12 | Bloc résistance | | AF220005014 | AF220005010 |
| 13 | Joint résistance | | AF220005023 | AF220005023 |
| 14 | Bride résistance | | AF220005182 | AF220005182 |
| 15 | Ensemble sortie eau | | AF220006550 | AF220006551 |
| 16 | Ensemble alimentation eau | | AF220005680 | AF220005680 |
| 17 | Filtre | | AF200031385 | AF200031385 |
| 18 | Electrovanne | | AF220006915 | AF220006915 |

## 8.11. OIL/GAS HEATING UNIT PARTS LIST



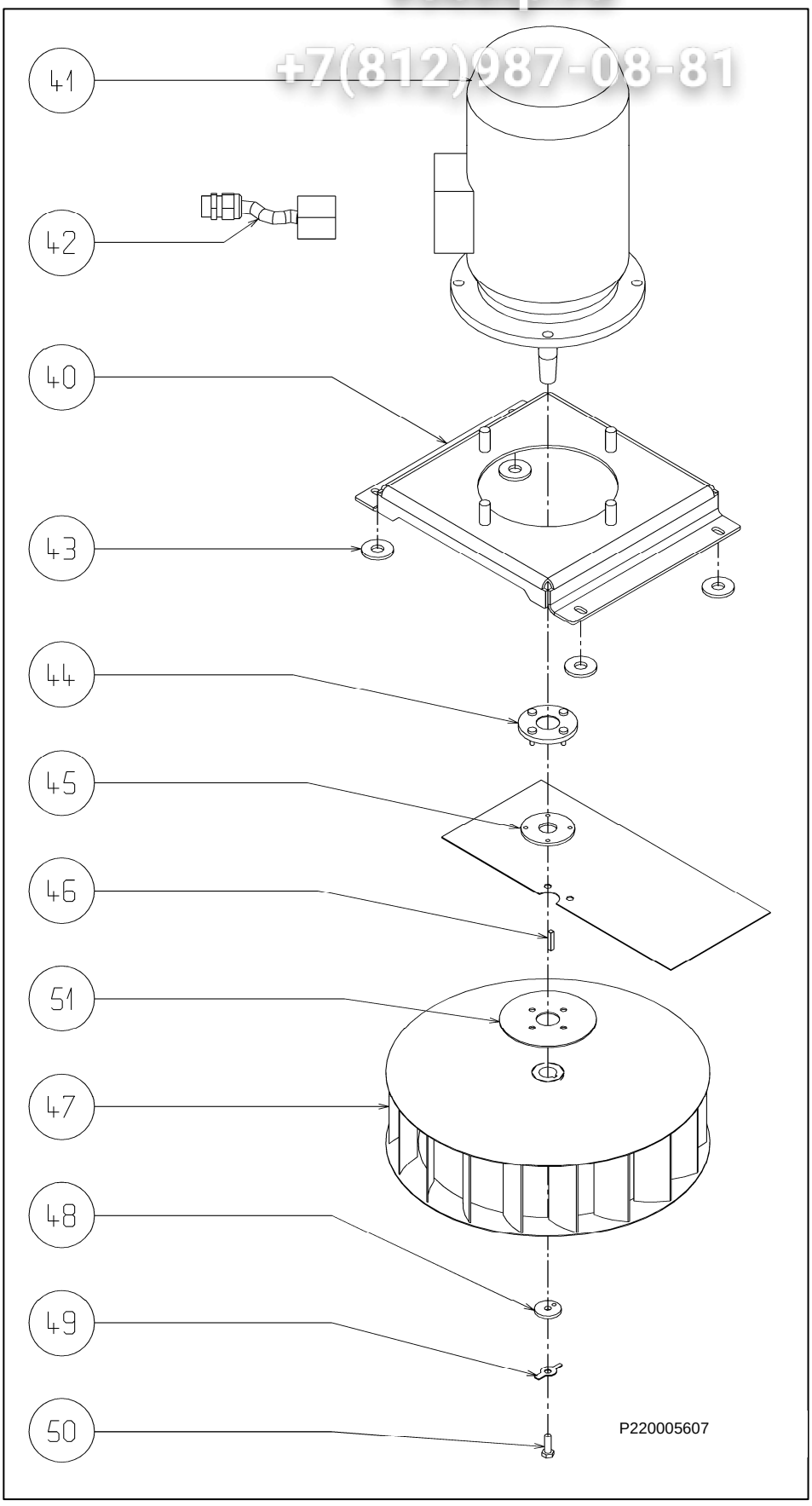


## Oil/Gas Heating unit parts list

| Rep. | Désignation | | M1 | M2 |
|---|---|---|---|---|
| | **BLOC MONTE MAZOUT/GAZ** | 50Hz | AF220005615 | AF220005616 |
| | | 60Hz | AF220006655 | AF220006656 |
| 20 | Bloc soudé | | AF220005355 | AF220005136 |
| 21 | Tôle isolation droite | | AF220005535 | AF220005537 |
| 22 | Tôle isolation gauche | | AF220005536 | AF220005538 |
| 23 | Traverse support coffret | | AF220005236 | AF220005236 |
| 24 | Séparation horizontale | | AF220005327 | AF220005371 |
| 25 | Tôle centrale aspiration | 50Hz | AF220005359 | AF220005501 |
| | | 60Hz | AF220006665 | AF220006666 |
| 26 | Volet gauche aspiration | | AF220006518 | AF220006520 |
| 27 | Volet droit aspiration | | AF220006519 | AF220006521 |
| 28 | Boîte trop plein | | AF220005677 | AF220005678 |
| 29 | Bac gauche | | AF220006660 | AF220006662 |
| 30 | Bac droit | | AF220006661 | AF220006663 |
| 31 | Isolation arrière haute | | AF220005028 | AF220005268 |
| 32 | Isolation arrière basse | | AF220005029 | AF220005269 |
| 33 | Isolation inférieure | | AF220005575 | AF220005576 |
| 34 | Ensemble sortie eau M/G | | AF220006552 | AF220006553 |
| 35 | Ensemble alimentation eau | | AF220005680 | AF220005680 |
| | Raccord | | AF200031461 | AF200031461 |
| 36 | Electrovanne | | AF220006915 | AF220006915 |
| 37 | Filtre | | AF200031385 | AF200031385 |

## 8.12. HEATING UNIT PARTS LIST: MOTOR IMPELLER ASSEMBLY





## Heating unit parts list motor impeller



| Rep. | Désignation | | M1 | M2 |
|---|---|---|---|---|
| 40 | Support moteur | | AF220005235 | AF220005235 |
| 41 | Moteur | 50 Hz | AF200033941 | AF200033942 |
| | | 60 Hz | AF200033942 | AF200033943 |
| 42 | Connecteur | | AF220005728 | AF220005728 |
| 43 | Rondelle isolante | | AF200001473 | AF200001473 |
| 44 | Rondelle étanchéité | | AF220008228 | AF220008228 |
| 45 | Joint étanchéité | | AF200012539 | AF200012539 |
| 46 | Clavette | | AF200019129 | AF200019129 |
| 47 | Turbine | | AF220001192 | AF220005270 |
| 48 | Rondelle arrêt | | AF201923301 | AF201923301 |
| 49 | Plaquette arrêt | | AF201913001 | AF201913001 |
| 50 | Vis arrêt | | AF200032003 | AF200032003 |
| 51 | Rondelle renfort joint moteur | | AF220004625 | AF220004625 |



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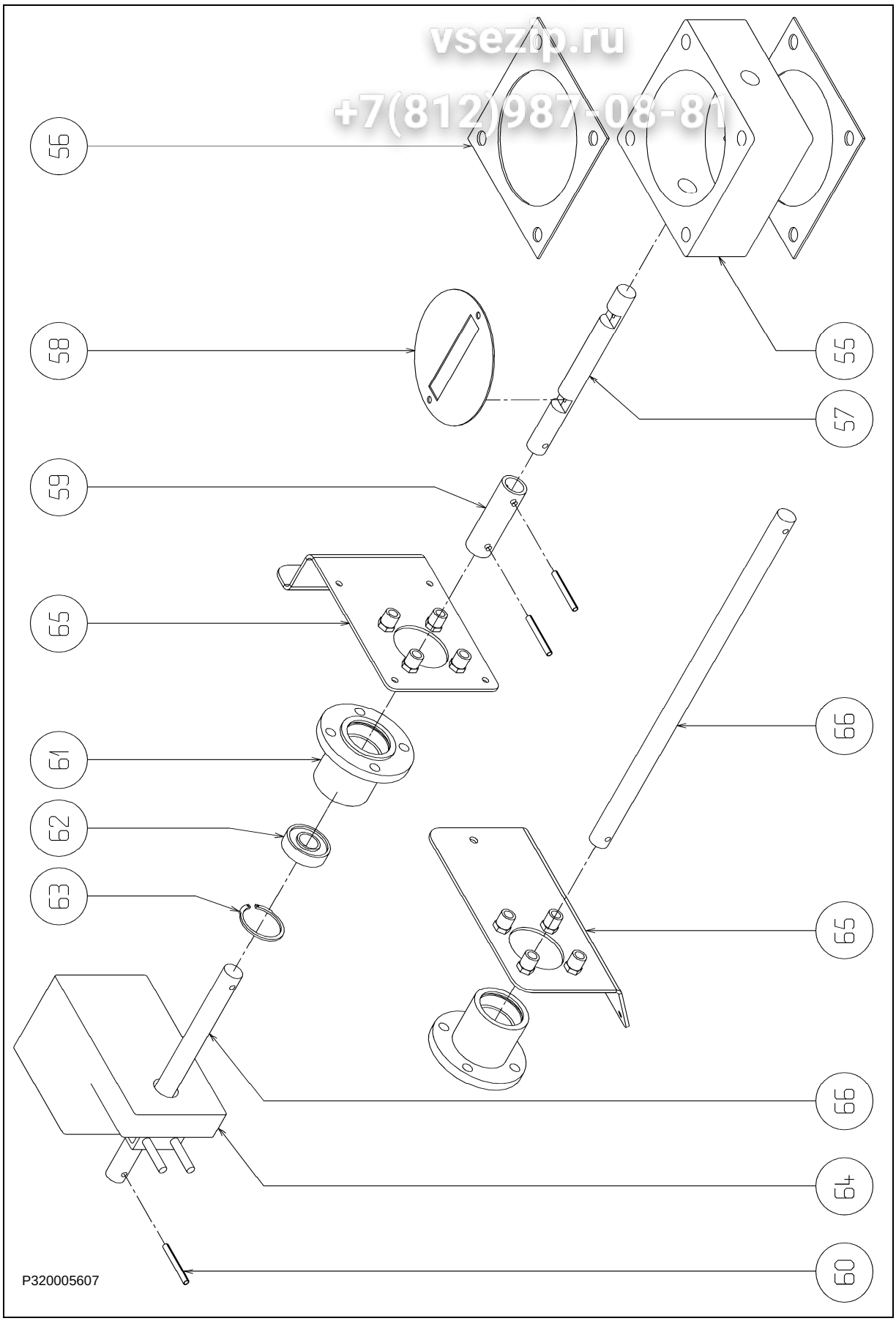
## 8.13. DAMPER PARTS LIST





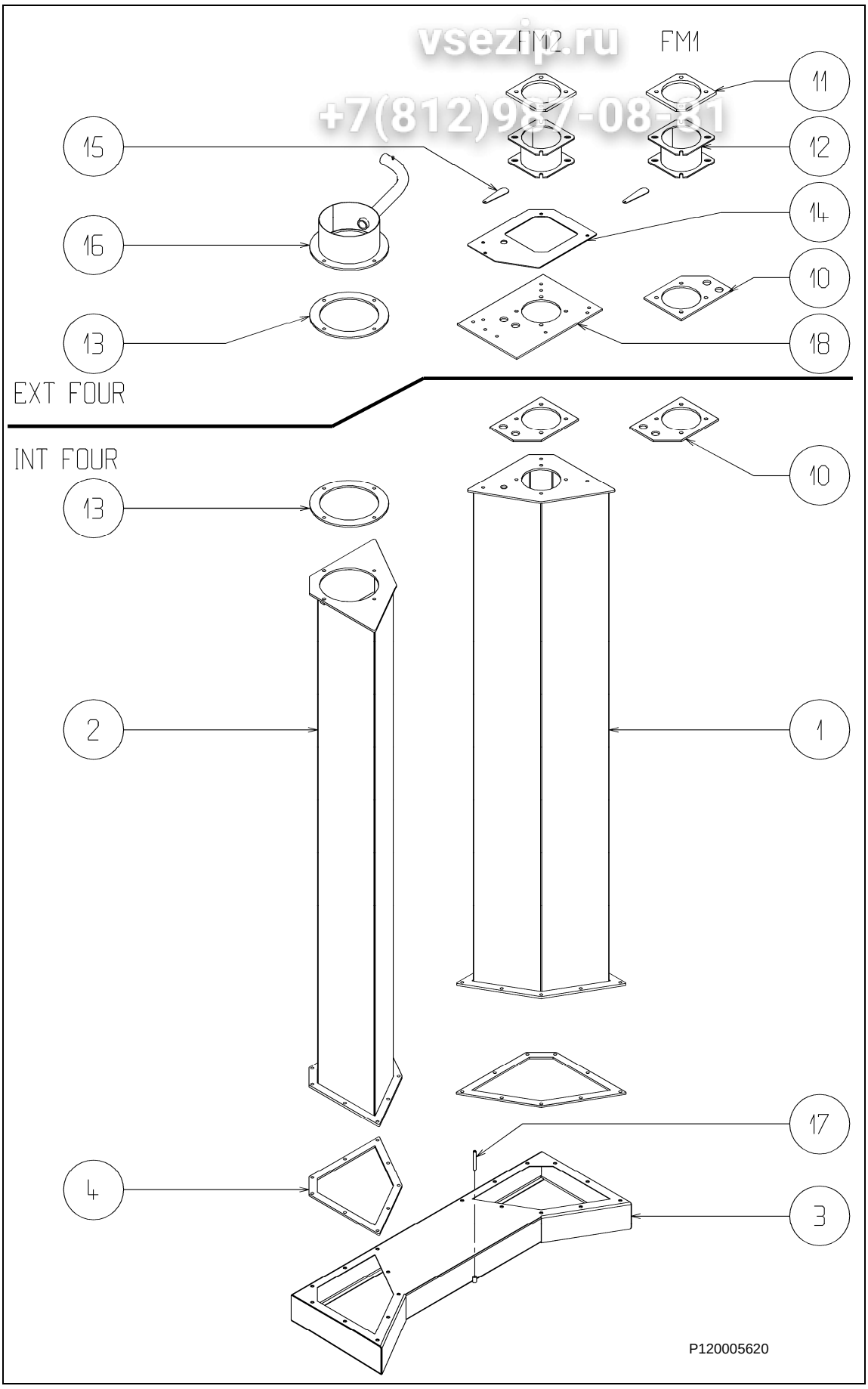
**Damper parts list**



| Rep. | Désignation | | M1 | M2 |
|---|---|---|---|---|
| 55 | Corps | | AF220005039 | AF220005039 |
| 56 | Joint | | AF220005030 | AF220005030 |
| 57 | Axe | | AF220005488 | AF220005488 |
| 58 | Volet | | AF220005291 | AF220005291 |
| 59 | Cardan | | AF220005225 | AF220005225 |
| 60 | Goupille | | AF200032598 | AF200032598 |
| 61 | Palier commande | | AF220005489 | AF220005489 |
| 62 | Roulement à billes | | 2x AF200033090 | 2x AF200033090 |
| 63 | Circlips | | AF200032896 | AF200032896 |
| 64 | Servo-moteur | | AF220005571 | AF220005571 |
| 65 | Support moteur | électrique | AF220005590 | AF220005590 |
| | | mazout/gaz | AF220005591 | AF220005591 |
| 66 | Axe commande | électrique | AF220005494 | AF220005494 |
| | | mazout/gaz | AF220005495 | AF220005495 |

## 8.14. HEAT EXCHANGER PARTS LIST





## Oil/gas heat exchanger parts list

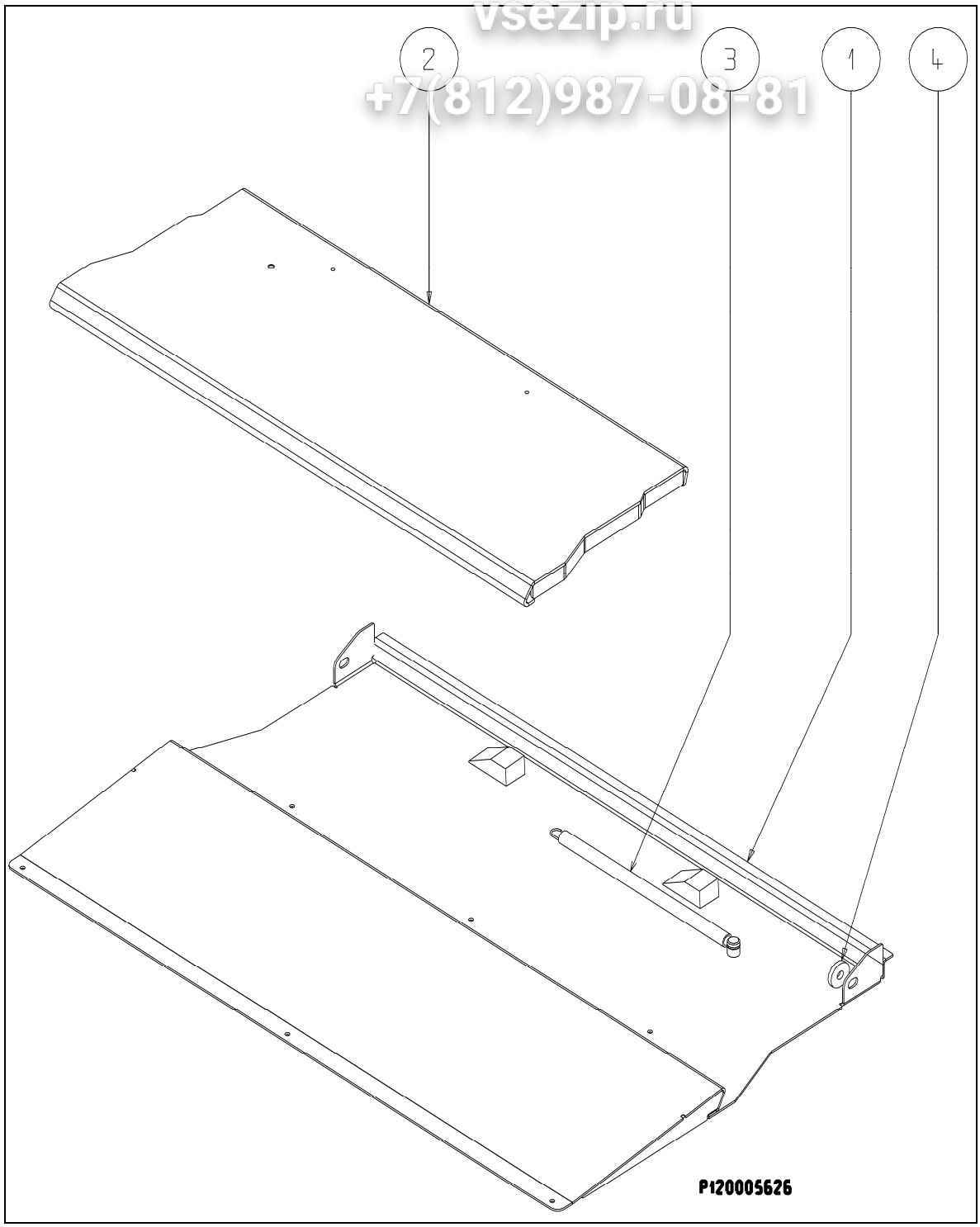
| Rep. | Désignation | M1 | M2 |
|---|---|---|---|
| | **ECHANGEUR MONTE** | AF220005619 | AF220005620 |
| | **COMPRENANT** | | |
| 1 | Colonne brûleur | AF220005352 | AF220005541 |
| 2 | Colonne cheminée | AF220005353 | AF220005542 |
| 3 | Boîte inférieure | AF220005354 | AF220005543 |
| 4 | Joint bride basse | AF220005520 | AF220005521 |
| 10 | Joint bouchon sup. brûleur | AF220005526 | AF220005526 |
| 11 | Isolant brûleur | AF220005272 | AF220005272 |
| 12 | Support brûleur H90 | AF220005350 | AF220005350 |
| | Support brûleur H50 | AF220005566 | AF220005566 |
| 13 | Joint bouchon sup. sortie | AF220005523 | AF220005524 |
| 14 | Renfort support colonne | - | AF220005379 |
| 15 | Œilleton | AF220005449 | AF220005449 |
| 16 | Sortie fumée | AF220005683 | AF220005684 |
| 17 | Axe guide échangeur | AF220005358 | AF220005358 |
| 18 | Joint bouchon sup brûleur | - | AF220017591 |

- Parts no. 4,10,13 and 18 are made of 6 mm thick high-temperature fibre. (not compressed).

- Part no. 11 is made of 10 mm thick high-temperature fibre (not compressed).

## 8.15. INCLINED PAN PARTS LIST





## Inclined pan parts list

| Rep. | Désignation | | M1 | M2 |
|---|---|---|---|---|
| | **PAN INCLINE MONTE** | **Porte droite** | AF220005626 | AF220005627 |
| | | **Porte gauche** | AF220014500 | AF220014506 |
| | | | | |
| | COMPRENANT | | | |
| 1 | Pan incliné fixe | Porte droite | AF220005640 | AF220005642 |
| | | Porte gauche | AF220014503 | AF220014509 |
| 2 | Pan incliné mobile | Porte droite | AF220005641 | AF220005643 |
| | | Porte gauche | AF220014501 | AF220014507 |
| 3 | Ressort de rappel | | AF220005499 | AF220005499 |
| 4 | Rondelle de calage | | AF220014609 | AF220014609 |



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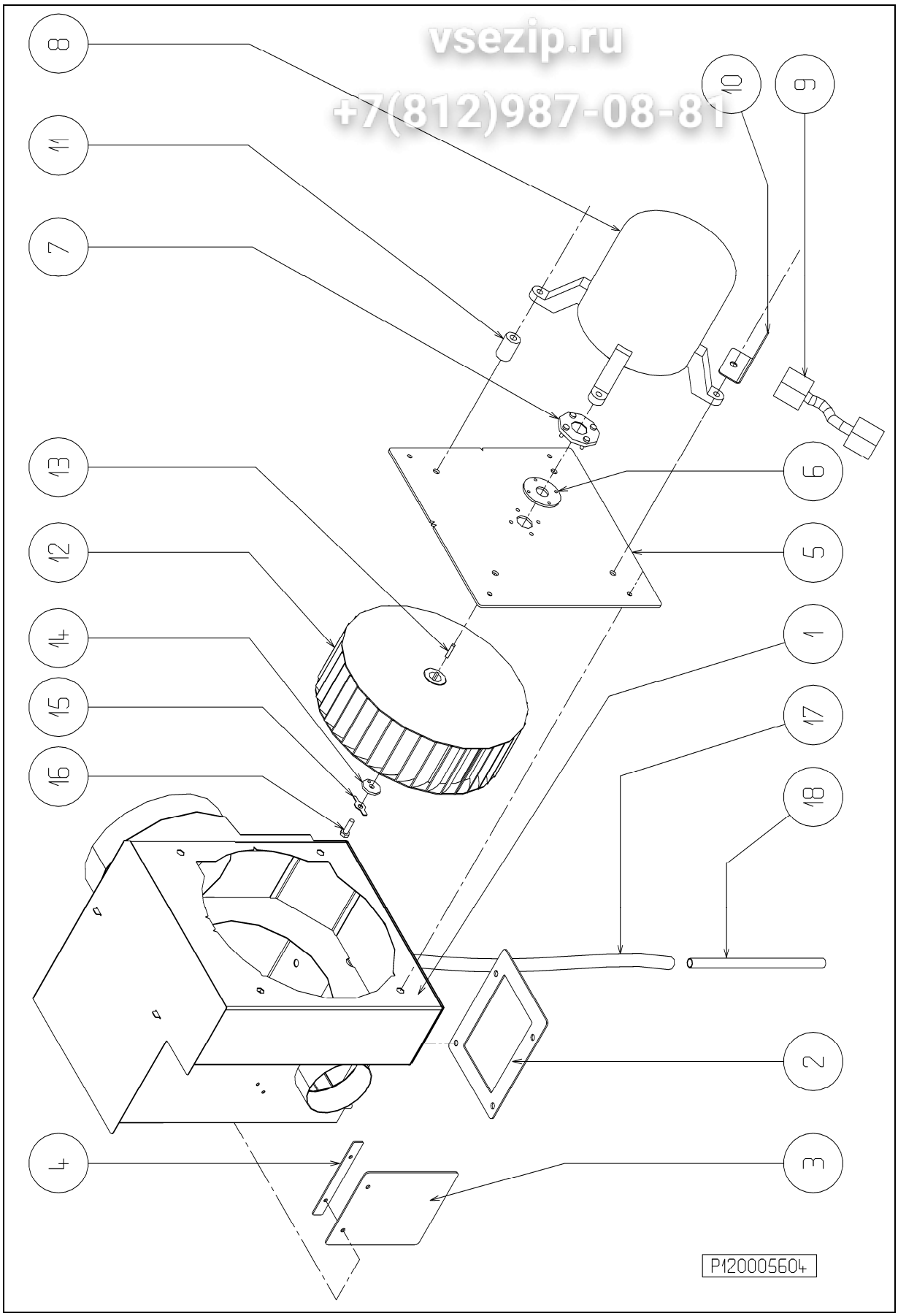
## 8.16. STEAM EXHAUST FAN PARTS LIST





## Steam exhaust fan parts list



| Rep. | Désignation | M1 | M2 | S.A.V. |
|---|---|---|---|---|
| | **EXTRACTEUR MONTE** | AF220005604 | AF220005605 →10/00<br>→11/00 AF220006670 | |
| | COMPRENANT | | | |
| 1 | Boîte extracteur | AF220005464 | AF220005465 | |
| 2 | Joint | AF220005263 | AF220005263 →10/00<br>→11/00 AF220006675 | |
| 3 | Clapet | AF220005264 | AF220005264 | x |
| 4 | Support clapet | AF220005457 | AF220005457 | |
| 5 | Support moteur | AF220005453 | AF220005453 | |
| 6 | Joint étanchéité | AF200012539 | AF200012539 | x |
| 7 | Rondelle étanchéité | AF220008228 | AF220008228 | |
| 8 | Moteur | AF200033940 | AF200033940 | x |
| 9 | Rallonge connecteur | AF220005722 | AF220005722 | |
| 10 | Patte rallonge connecteur | AF220005458 | AF220005458 | x |
| 11 | Entretoise support moteur | AF220005498 | AF220005498 | |
| 12 | Turbine | AF220005417 | AF220005417 | x |
| 13 | Clavette | AF200019129 | AF200019129 | x |
| 14 | Rondelle arrêt | AF201923301 | AF201923301 | x |
| 15 | Plaquette arrêt | AF201913001 | AF201913001 | x |
| 16 | Vis arrêt | AF200032003 | AF200032003 | x |
| 17 | Tube cristal lg 2m | AF200021488 | AF200021488 | |
| 18 | Tube cuivre | AF220005529 | AF220005529 | |



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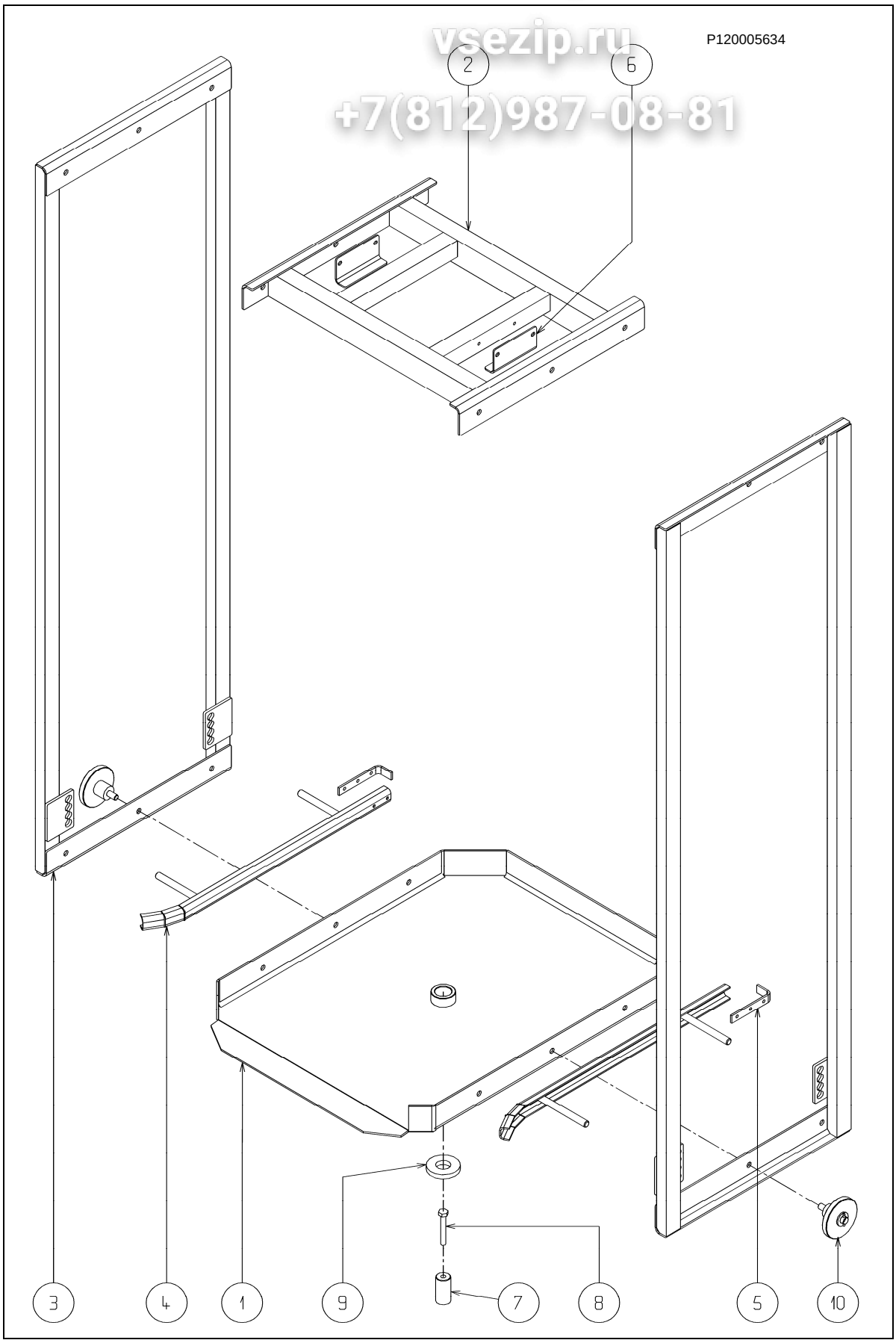
## 8.17. SQUIRREL CAGE PARTS LIST



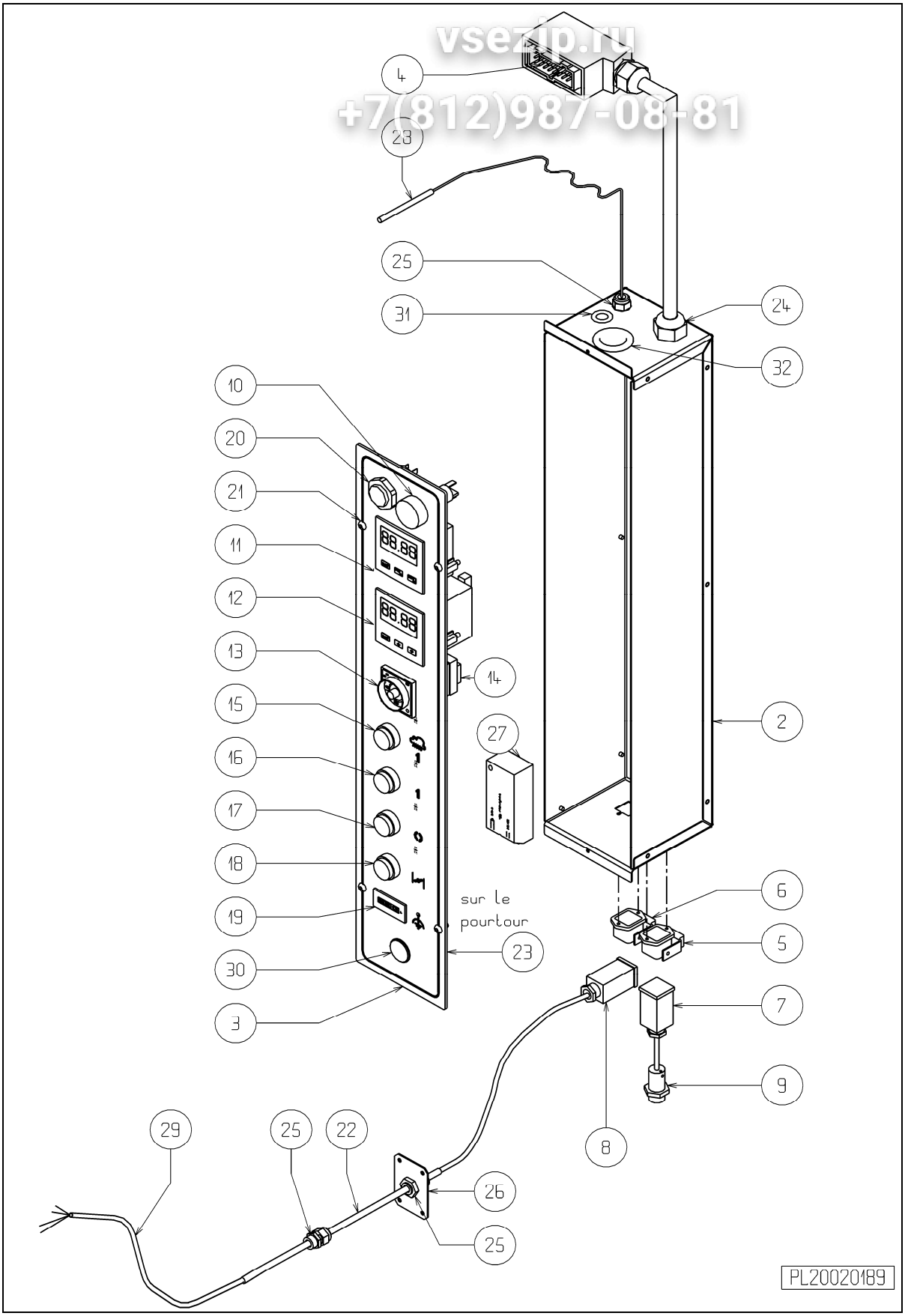


## Squirrel cage parts list

| Rep. | Désignation | M1 | M2 |
|---|---|---|---|
| | **CAGE D'ECUREUIL** | AF220005634 | AF220005635 |
| | | | |
| | **COMPRENANT** | | |
| 1 | Plateau soudé | AF220005195 | AF220005100 |
| 2 | Chassis soudé | AF220005196 | AF220005102 |
| 3 | Montant soudé | AF220005138 | AF220005101 |
| 4 | Glissière latérale soudé | AF220005651 | AF220005651 |
| 5 | Butée arrière | AF220005254 | AF220005254 |
| 6 | Cornière extérieure disque | AF220005097 | AF220005097 |
| 7 | Centreur | AF220005018 | AF220005018 |
| 8 | Vis 10x80 | AF200032255 | AF200032255 |
| 9 | Bague inférieure | AF220006557 | AF220006557 |
| 10 | Axe roulette montée | AF220006560 | AF220006560 |

## 8.18. CONTROL PANEL PARTS LIST





## Control panel parts list



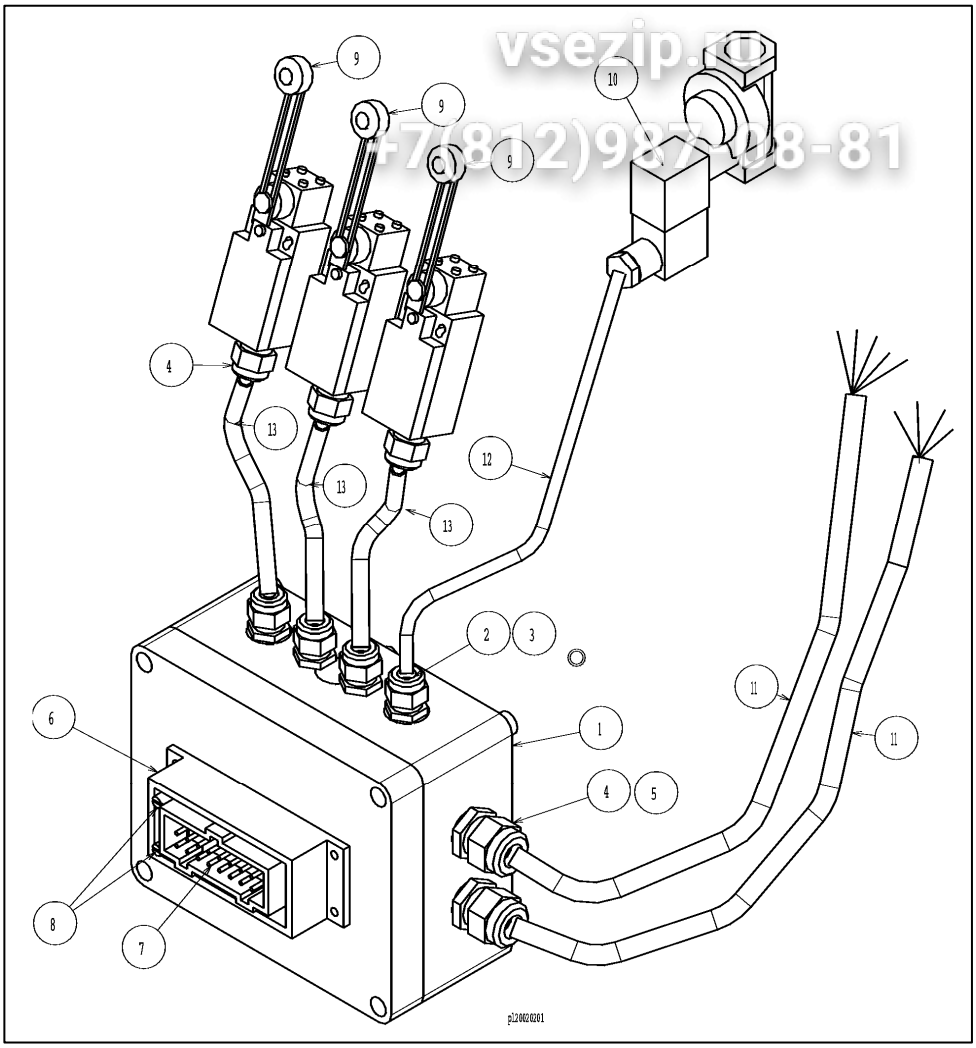
| Rep. | Désignation | M1 | M2 |
|---|---|---|---|
| 2 | Boîte brute assemblée | AF220007411 | AF220007411 |
| 3 | Face avant sérigraphiée | AF220005477 | AF220005477 |
| 4 | Connecteur façade câblé | AF220005713 | AF220005713 |
| 5 | Embase 3-4 plots + T 10 A<br>Insert femelle 4 pôles + T 10 A | AF200033781<br>AF200033784 | AF200033781<br>AF200033784 |
| 6 | Embase 3-4 plots + T 10 A<br>Insert mâle 4 pôles + T 10 A | AF200033781<br>AF200033783 | AF200033781<br>AF200033783 |
| 7 | Capot 3-4 plots + T 10 A<br>Insert mâle 4 pôles + T 10 A | AF200033782<br>AF200033783 | AF200033782<br>AF200033783 |
| 8 | Capot 3-4 plots + T 10 A<br>Insert femelle 4 pôles + T 10 A | AF200033782<br>AF200033784 | AF200033782<br>AF200033784 |
| 9 | Detector inductif D18 5mm | AF200033793 | AF200033793 |
| 10 | Voyant D22 IP65 Jaune | AF270033003 | AF270033003 |
| 11 | Ancienne horloge différé cuisson ->10.2007<br>Nouvelle horloge différé cuisson 10.2007-> | AF200033802<br>AF270026001 | AF200033802<br>AF270026001 |
| 12 | Ancien régulateur température ->10.2007<br>Nouveau régulateur température 10.2007-> | AF200033785<br>AF270024001 | AF200033785<br>AF270024001 |
| 13 | Minuterie 48 x 48 220V<br>Capot protection minuterie 48x48 | AF200033676<br>AF200033678 | AF200033676<br>AF200033678 |
| 14 | Socle minuterie 48x48<br>Fixation minuterie | AF200033677<br>AF200033712 | AF200033677<br>AF200033712 |
| 15 | Tête lumineuse impulsion verte dépassant<br>Embase bloc électrique<br>Bloc contact F à vis standard<br>Bloc lumineux vert 230V | AF200033831<br><br>AF200033837<br>AF200033841<br>AF200033838 | AF200033831<br><br>AF200033837<br>AF200033841<br>AF200033838 |
| 16 | Tête lumineuse impulsion verte dépassant<br>Embase bloc électrique<br>Bloc contact F à vis standard<br>Bloc lumineux vert 230V | AF200033831<br><br>AF200033837<br>AF200033841<br>AF200033838 | AF200033831<br><br>AF200033837<br>AF200033841<br>AF200033838 |
| 17 | Tête impulsion rouge dépassant<br>Embase bloc électrique<br>Bloc contact O à vis standard | AF200033830<br>AF200033837<br>AF200033840 | AF200033830<br>AF200033837<br>AF200033840 |

## Control panel parts list (continued)



| Rep. | Désignation | | M1 | M2 |
|---|---|---|---|---|
| 18 | Tête lumineuse impulsion verte dépassant<br>Embase bloc électrique<br>Bloc contact F à vis standard<br>Bloc lumineux vert 230V | | AF200033831<br>AF200033837<br>AF200033841<br>AF200033838 | AF200033831<br>AF200033837<br>AF200033841<br>AF200033838 |
| 19 | Compteur horaire 208/230V | 50Hz | AF200033774 | 33774 |
| | | 60Hz | AF200033775 | 33775 |
| 20 | Buzzer 90D 230V | | AF200033803 | AF200033803 |
| 21 | Vis inox TB HC 6 x 12 | | AF200032094 | AF200032094 |
| 22 | Gaine inox ∅6,6 x 8,2 | | AF220005282 | AF220005282 |
| 23 | Joint 10 x 3 autocollant | | AF220005290 | AF220005290 |
| 24 | Presse étoupe plastique 21<br>Contre écrou plastique 21 | | AF200033058<br>AF200033059 | AF200033058<br>AF200033059 |
| 25 | Presse étoupe plastique 9<br>Contre écrou plastique 9 | | AF200033776<br>AF200033777 | AF200033776<br>AF200033777 |
| 26 | Rivet à deux clips de masse | | AF220005230 | AF220005230 |
| 27 | Transfo d'eclairage 03.2007 → | | AF200033617 | AF200033617 |
| | Ancien starter →03.2007 | | AF200033354 | AF200033354 |
| 28 | Thermocouple J Lg = 4500 | | AF200033791 | AF200033791 |
| 29 | Câble 5 x 0,75 MTP Lg = 3200 | | AF220005705 | AF220005705 |
| 30 | Bouchon D 22 | | AF200033507 | AF200033507 |
| 31 | Passe fil D 13.5 | | AF200033596 | AF200033596 |
| 32 | Passe fil D 29 | | AF200033479 | AF200033479 |
| | | | | |

## 8.19. ROOF DISTRIBUTION BOX PARTS LIST

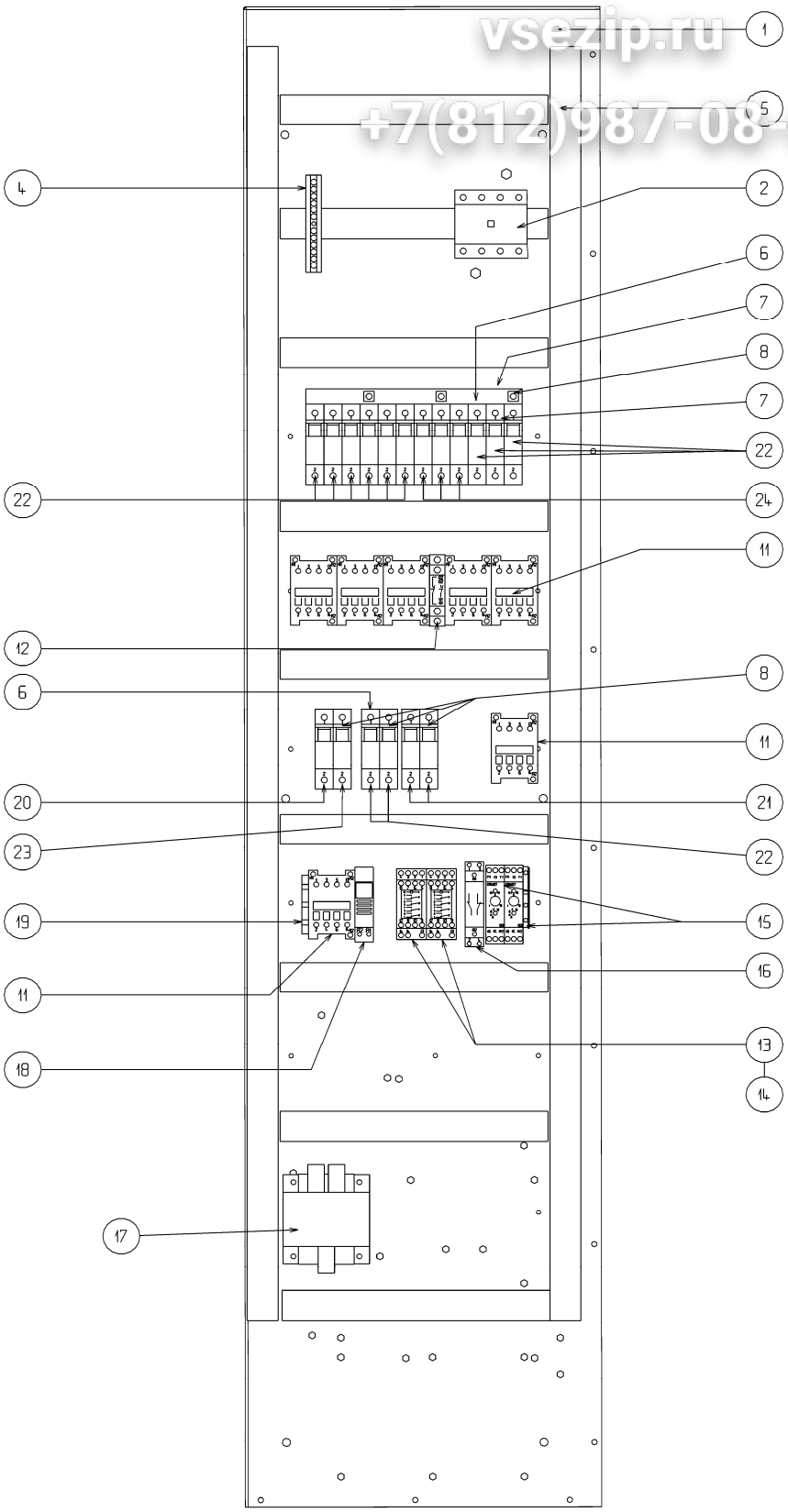



**Roof distribution box parts list**

| Rep. | Désignation | Code | S.A.V. |
|---|---|---|---|
| 1 | Boîte de dérivation percée | AF220005700 | |
| 2 | Presse étoupe plastique 9 | AF200033776 | |
| 3 | Contre écrou plastique 9 | AF200033777 | |
| 4 | Presse étoupe plastique 13 | AF200030199 | |
| 5 | Contre écrou plastique 13 | AF200033195 | |
| 6 | Embase fixation 16 plots | AF200033283 | |
| 7 | Isolant mâle 16 plots 16A | AF200033285 | |
| 8 | Vis de détrompage connecteur | AF200033773 | |
| 9 | Détecteur plastique à galet | AF200033790 | x |
| 10 | Electrovanne 230V 50/60 Hz | AF220006915 | x |
| 11 | Câble 7 x 1 caoutchouc siliconé Lg=2000 | AF220005702 | |
| 12 | Câble 3 x 1 caoutchouc siliconé Lg=2000 | AF220005703 | |
| 13 | Câble 3 x 1 caoutchouc siliconé Lg=1000 | AF220005704 | |

## 8.20. OIL/GAS 380/415V ELECTRICAL CABINET BACK PARTS LIST





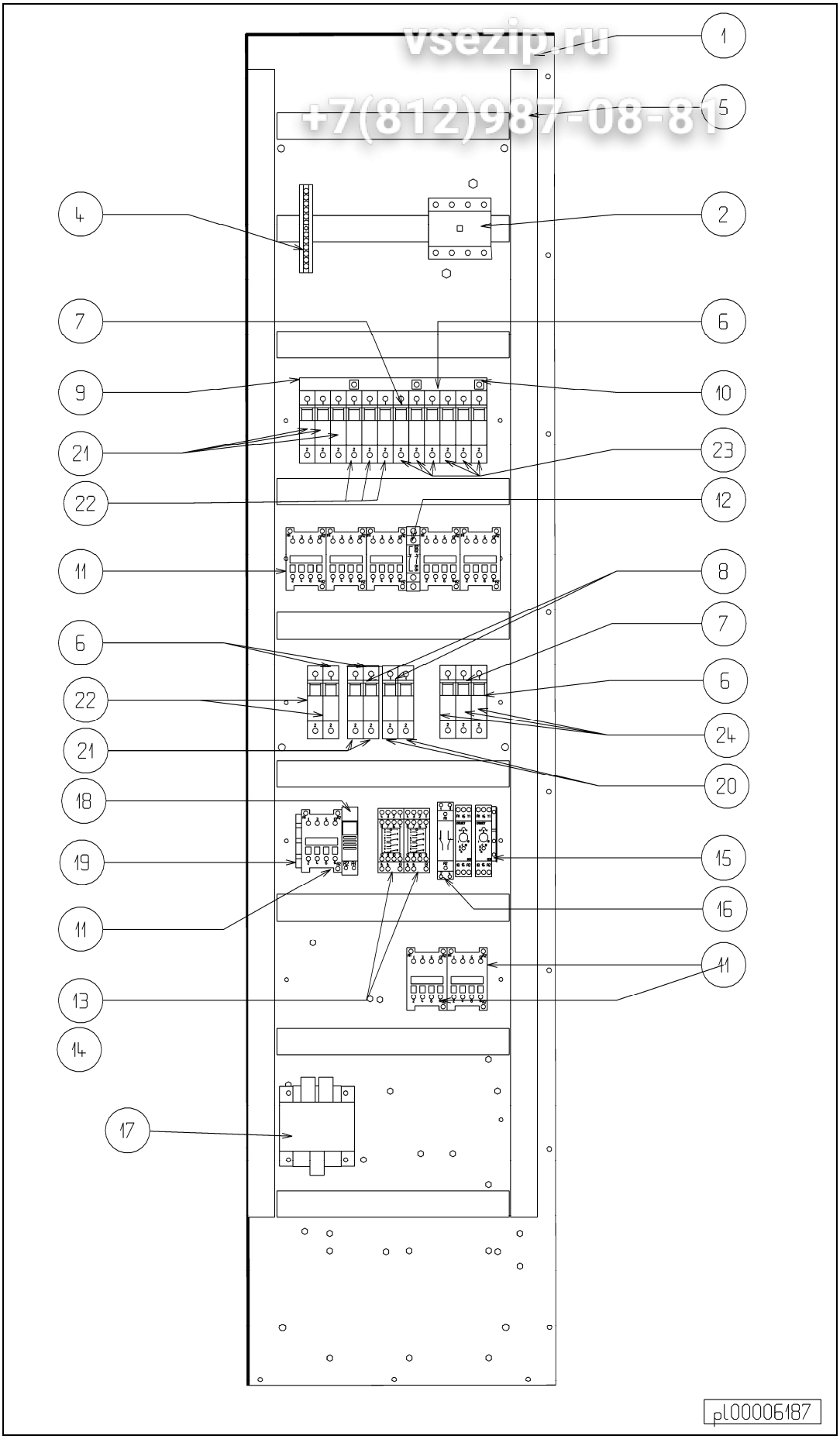
## Oil/gas 380/415v electrical cabinet back parts list



| Rep. | Désignation | 380/415V | S.A.V. |
|---|---|---|---|
| 1 | Fond coffret M1 | AF220005492 | |
| 2 | Inter sectionneur tetra 32A | AF200033483 | |
| 4 | Bornier vert 12 plots | AF200033797 | |
| 5 | Goulotte de câblage | AF200033005 | |
| 6 | Porte fusible 10,3 x 38 | AF200033502 | |
| 7 | Kit d'association 3 pôles | AF200033218 | |
| 8 | Kit d'association 2 pôles | AF200033215 | |
| 9 | Barre de pontage tri 4 appareils | AF200033799 | |
| 10 | Borne de raccordement | AF200033798 | |
| 11 | Contacteur triphasé 25A 230V | AF270010100 | x |
| 12 | Adjonction inverseur électrique | AF270012000 | |
| 13 | Socle relai 4 RT | AF200033711 | |
| 14 | Relai 4 RT 10A 230V | AF200033586 | x |
| 15 | Temporisation fond armoire Multigamme | AF200033674 | x |
| 16 | Télérupteur 230V bipolaire inverseur | AF200033440 | x |
| 17 | Transformateur mono 130VA 400/230V | AF200033770 | |
| 18 | Sonnerie modulaire 230V | AF200033374 | |
| 19 | Borne 6 mm(r) vert jaune | AF200030274 | |
| 20 | Fusible 10 x 38 neutre | AF200033187 | |
| 21 | Fusible 10 x 38 1A gi | AF200033203 | x |
| 22 | Fusible 10 x 38 2A am | AF200033722 | x |
| 23 | Fusible 10 x 38 4A am | AF200033143 | x |
| 24 | Fusible 10 x 38 8A am | AF200030523 | x |
| 25 | Transformateur mono 130VA | AF270010503 | |

## 8.21. OIL/GAS 208/230V ELECTRICAL CABINET BACK PARTS LIST





## Oil/gas 208/230v electrical cabinet back parts list

| Rep. | Désignation | 208/230V | S.A.V. |
|---|---|---|---|
| 1 | Fond coffret M1 | AF220005492 | |
| 2 | Inter sectionneur tetra 32A | AF200033483 | |
| 4 | Bornier vert 12 plots | AF200033797 | |
| 5 | Goulotte de câblage | AF200033005 | |
| 6 | Porte fusible 10,3 x 38 | AF200033502 | |
| 7 | Kit d'association 3 pôles | AF200033218 | |
| 8 | Kit d'association 2 pôles | AF200033215 | |
| 9 | Barre de pontage tri 4 appareils | AF200033799 | |
| 10 | Borne de raccordement | AF200033798 | |
| 11 | Contacteur triphasé 25A 230V | AF270010100 | x |
| 12 | Adjonction inverseur électrique | AF270012000 | |
| 13 | Socle relai 4 RT | AF200033711 | |
| 14 | Relai 4 RT 10A 230V | AF200033586 | x |
| 15 | Temporisation fond armoire Multigamme | AF200033674 | x |
| 16 | Télérupteur 230V bipolaire inverseur | AF200033440 | x |
| 17 | Transformateur mono 130VA | AF270010503 | |
| 18 | Sonnerie modulaire 230V | AF200033374 | |
| 19 | Borne 6 mm(r) vert jaune | AF200030274 | |
| 20 | Fusible 10 x 38 1A gi | AF200033203 | x |
| 21 | Fusible 10 x 38 2A am | AF200033722 | x |
| 22 | Fusible 10 x 38 4A am | AF200033143 | x |
| 23 | Fusible 10 x 38 8A am | AF200030523 | x |



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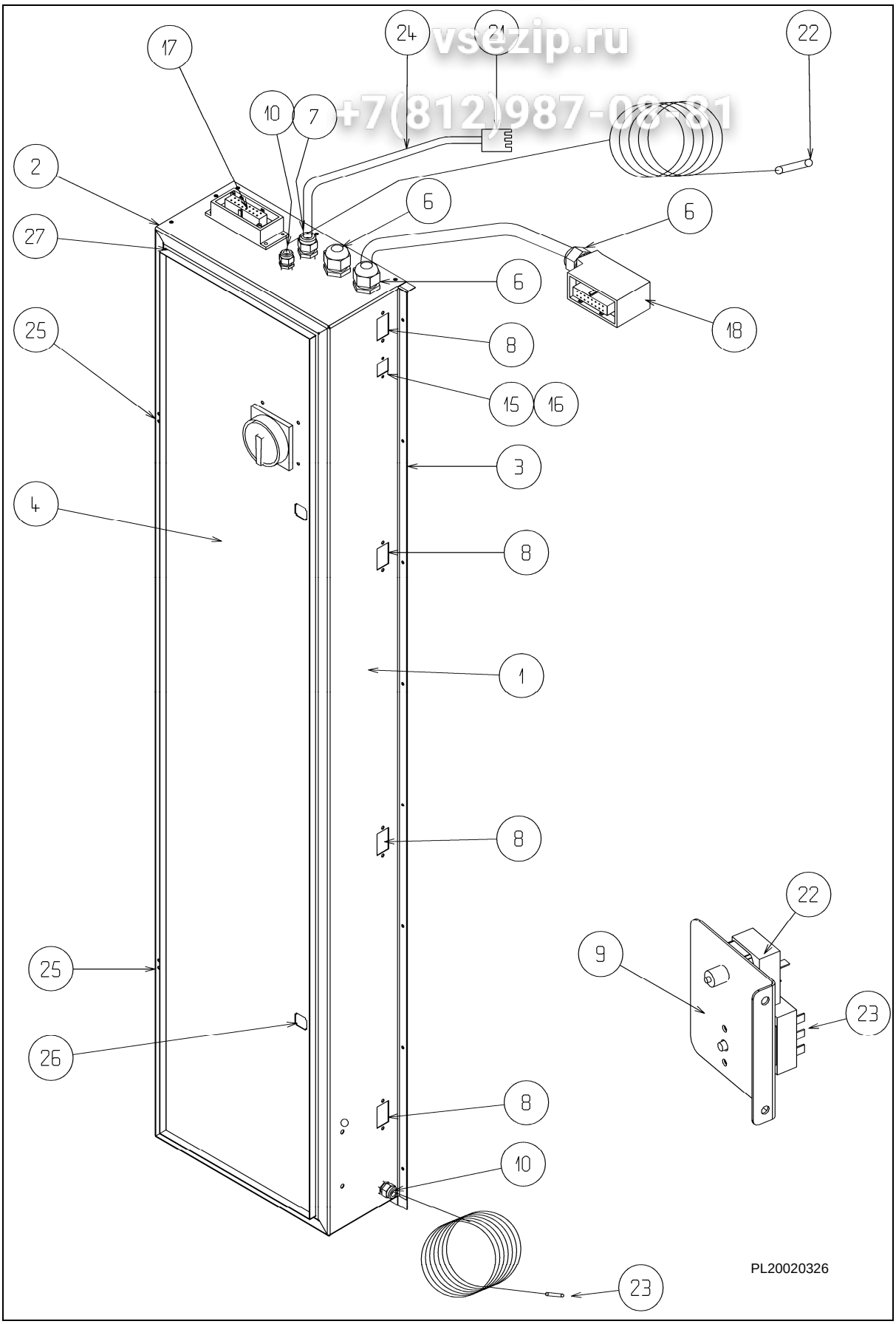
## 8.22. OIL/GAS ELECTRICAL CABINET PARTS LIST





## Oil/gas electrical cabinet parts list

| Rep. | Désignation | Code | S.A.V. |
|---|---|---|---|
| 1 | Côté droit coffret | AF220005567 | |
| 2 | Côté gauche coffret | AF220005490 | |
| 3 | Fond monté | AF220005739 | |
| 4 | Porte coffret | AF220005493 | |
| 6 | Presse étoupe 21 plastique<br>contre écrou 21 plastique | AF200033058<br>AF200033059 | |
| 7 | Presse étoupe 13 plastique<br>contre écrou 13 plastique | AF200030199<br>AF200033195 | |
| 8 | Connecteurs moteur câblés 380V<br>Connecteurs moteur câblés 230V | AF220005709<br>AF220005770 | |
| 9 | Support thermostat | AF220005595 | |
| 10 | Presse étoupe 9 plastique<br>contre écrou 9 plastique | AF200033776<br>AF200033777 | |
| 15 | Embase 3-4 pôles + terre 10A | AF200033781 | |
| 16 | Insert femelle 4 pôles + terre | AF200033784 | |
| 17 | Connecteur cablé 1mm² 16 plots | AF220005710 | |
| 18 | Connecteur 16 plots coffret plafond | AF220005714 | |
| 21 | Fiche mâle 6 x 2,5 $mm^2$ | AF200033377 | |
| 22 | Thermostat de sécurité 100°C | AF200033779 | x |
| 23 | Thermostat de sécurité 340)C | AF200033362 | x |
| 24 | Câble 4 x 1 caoutchouc siliconé Lg = 2500 | AF220005717 | |
| 25 | Charnière de porte | AF220005262 | |
| 26 | 1/4 de tour serrure | AF220005265 | |
| 27 | Joint de porte | AF220005290 | |



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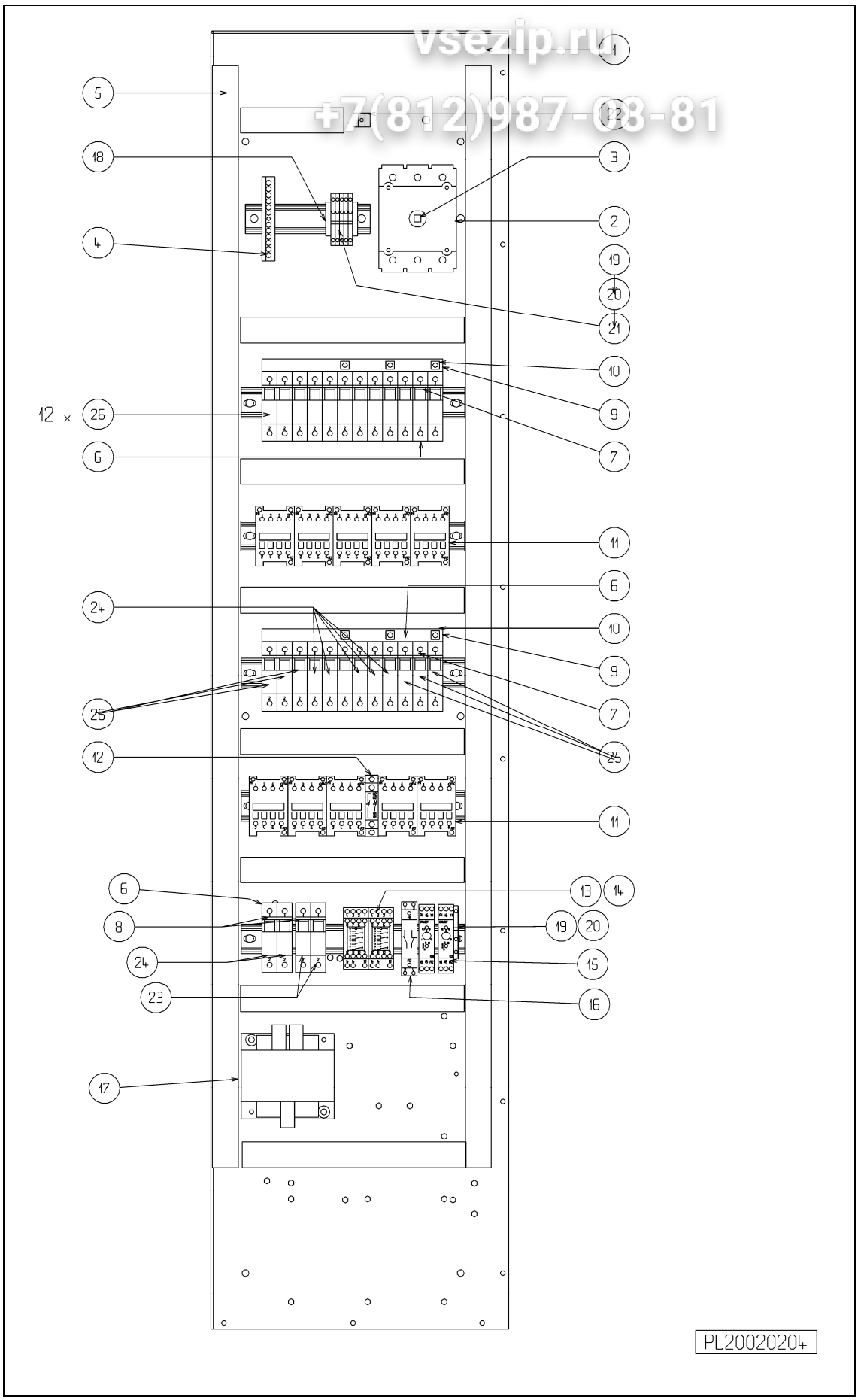
## 8.23. ELECTRIC M1E 380/415V ELECTRICAL CABINET BACK PARTS LIST



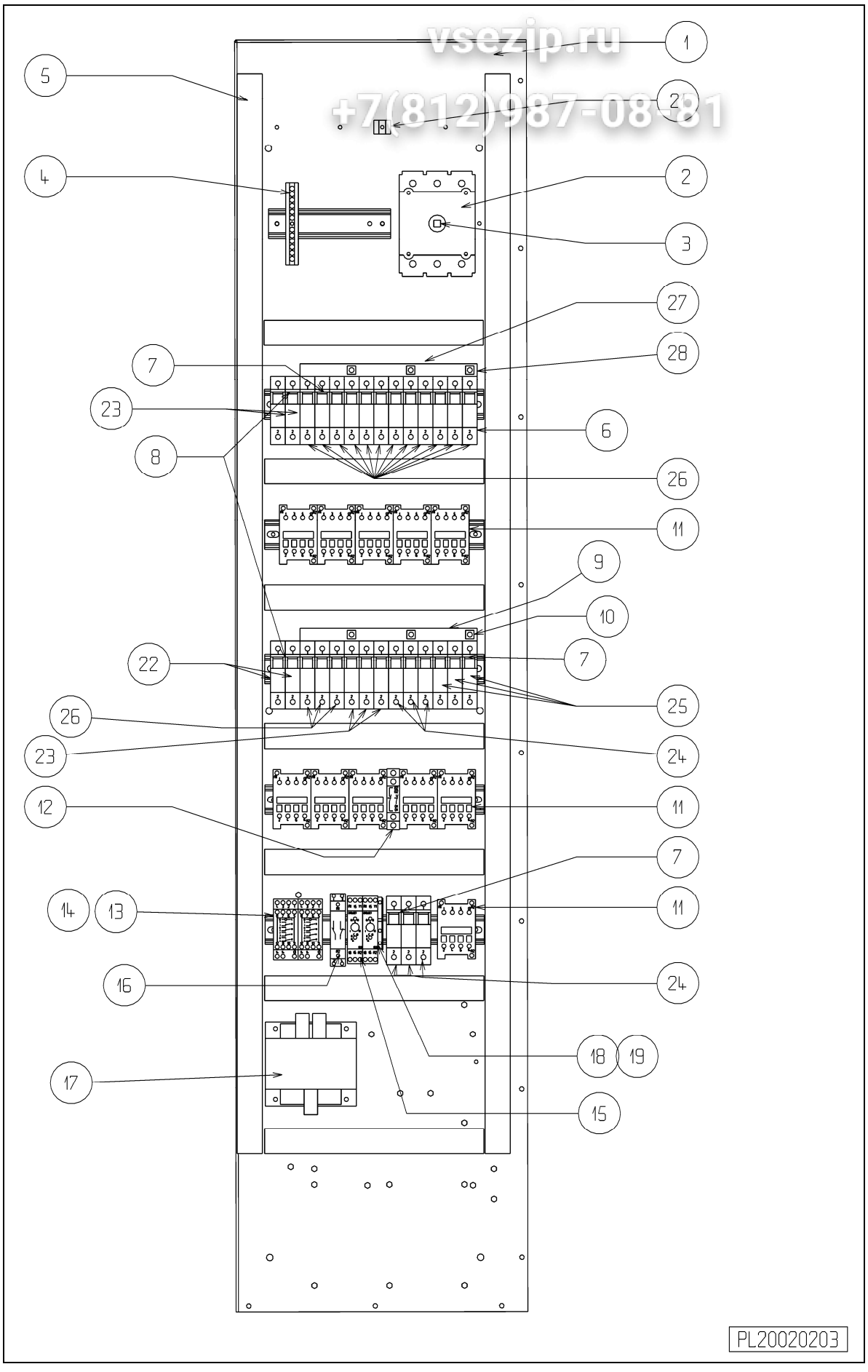


## Electric M1 380/415V electrical cabinet back parts list

| Rep. | Désignation | 380/415V | S.A.V. |
|---|---|---|---|
| 1 | Fond coffret | AF220005492 | |
| 2 | Inter sectionneur tri 125A | AF200033741 | |
| 3 | Rallonge d'axe | AF200033576 | |
| 4 | Bornier vert 12 plots | AF200033797 | |
| 5 | Goulotte de câblage | AF200033005 | |
| 6 | Porte fusible 10,3 x 38 | AF200033502 | |
| 7 | Kit d'association 3 pôles | AF200033218 | |
| 8 | Kit d'association 2 pôles | AF200033215 | |
| 9 | Barre de pontage tri 4 appareils 60A | AF200033799 | |
| 10 | Borne de raccordement 25 $mm^2$ | AF200033798 | |
| 11 | Contacteur triphasé 25A 230V | AF270010100 | x |
| 12 | Adjonction inverseur électrique | AF270012000 | |
| 13 | Socle relai 4RT | AF200033711 | |
| 14 | Relai 4RT 10A 230V | AF200033586 | x |
| 15 | Temporisation fond armoire Multigamme | AF200033674 | x |
| 16 | Télérupteur 230V bipolaire inverseur | AF200033440 | x |
| 17 | Transformateur mono 200 VA400/230V | AF270010501 | x |
| 18 | Borne 6 $mm^2$ vert jaune | AF200030274 | |
| 19 | Borne sans vis 3 x 2,5$mm^2$ | AF200033794 | |
| 20 | Cloison de borne terminale | AF200033795 | |
| 21 | Peigne liaison 2,5 $mm^2$ 10 pôles | AF200033796 | |
| 22 | Serre Câble 95 $mm^2$ | AF200033049 | |
| 23 | Fusible 10 x 38 1A gi | AF200033203 | x |
| 24 | Fusible 10 x 38 2A am | AF200033722 | x |
| 25 | Fusible 10 x 38 8A am | AF200030523 | x |
| 26 | Fusible 10 x 38 16A gi | AF200033146 | x |

## 8.24. ELECTRIC M1E 208/230V ELECTRICAL CABINET BACK PARTS LIST





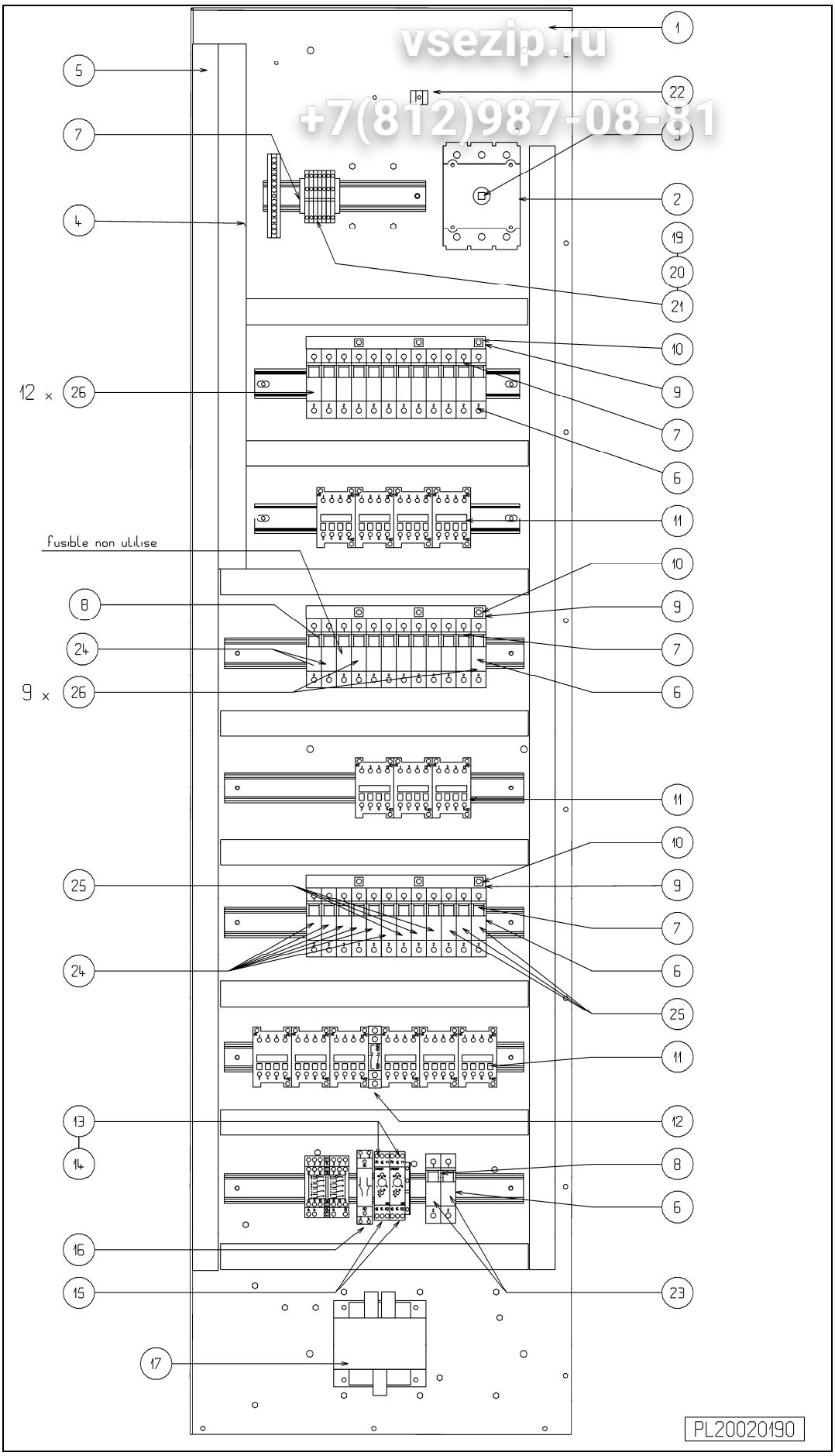
## Electric M1 208/230V electrical cabinet back parts list



| Rep. | Désignation | 208/230V | S.A.V. |
|---|---|---|---|
| 1 | Fond coffret | AF220005492 | |
| 2 | Inter sectionneur tri 125A | AF200033741 | |
| 3 | Rallonge d'axe | AF200033576 | |
| 4 | Bornier vert 12 plots | AF200033797 | |
| 5 | Goulotte de câblage | AF200033005 | |
| 6 | Porte fusible 10,3 x 38 | AF200033502 | |
| 7 | Kit d'association 3 pôles | AF200033218 | |
| 8 | Kit d'association 2 pôles | AF200033215 | |
| 9 | Barre de pontage tri 4 appareils 60A | AF200033799 | |
| 10 | Borne de raccordement 25 $mm^2$ | AF200033798 | |
| 11 | Contacteur triphasé 25A 230V | AF270010100 | x |
| 12 | Adjonction inverseur électrique | AF270012000 | |
| 13 | Socle relai 4RT | AF200033711 | |
| 14 | Relai 4RT 10A 230V | AF200033586 | x |
| 15 | Temporisation fond armoire Multigamme | AF200033674 | x |
| 16 | Télérupteur 230V bipolaire inverseur | AF200033440 | x |
| 17 | Transformateur mono 200 VA400/230V | AF270010501 | x |
| 18 | Borne sans vis 3 x 2,5$mm^2$ | AF200033794 | |
| 19 | Cloison de borne terminale | AF200033795 | |
| 20 | Peigne liaison 2,5 $mm^2$ 10 pôles | AF200033796 | |
| 21 | Serre Câble 95 $mm^2$ | AF200033049 | |
| 22 | Fusible 10 x 38 1A gi | AF200033203 | x |
| 23 | Fusible 10 x 38 2A am | AF200033722 | x |
| 24 | Fusible 10 x 38 4A am | AF200033144 | x |
| 25 | Fusible 10 x 38 8A am | AF200030523 | x |
| 26 | Fusible 10 x 38 25A gi | AF200033147 | x |
| 27 | Barre de pontage tri 20 appareils 96A | AF200033809 | |
| 28 | Borne de raccordement 50 $mm^2$ | AF200033806 | |

## 8.25. ELECTRIC M2E 380/415V ELECTRICAL CABINET BACK PARTS LIST



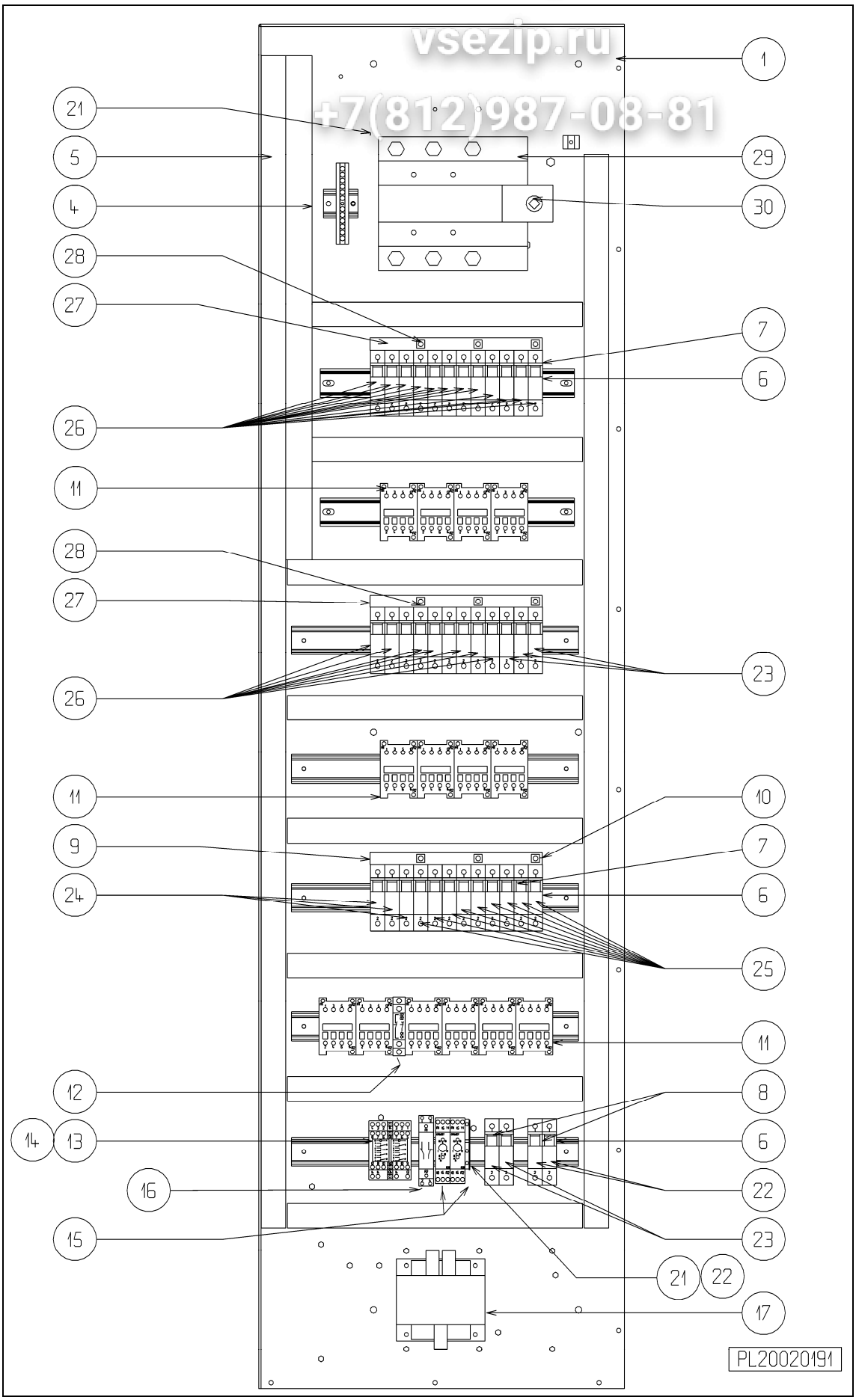


## Electric M2 380/415V electrical cabinet back parts list

| Rep. | Désignation | 380/415V | S.A.V. |
|---|---|---|---|
| 1 | Fond coffret | AF220005492 | |
| 2 | Inter sectionneur tri 125A | AF200033741 | |
| 3 | Rallonge d'axe | AF200033576 | |
| 4 | Bornier vert 12 plots | AF200033797 | |
| 5 | Goulotte de cablage | AF200033005 | |
| 6 | Porte fusible 10,3 x 38 | AF200033502 | |
| 7 | Kit d'association 3 pôles | AF200033218 | |
| 8 | Kit d'association 2 pôles | AF200033215 | |
| 9 | Barre de pontage tri 4 appareils 60A | AF200033799 | |
| 10 | Borne de raccordement 25 $mm^2$ | AF200033798 | |
| 11 | Contacteur triphasé 25A 230V | AF270010100 | x |
| 12 | Adjonction inverseur électrique | AF270012000 | |
| 13 | Socle relai 4RT | AF200033711 | |
| 14 | Relai 4RT 10A 230V | AF200033586 | x |
| 15 | Temporisation fond armoire multigamme | AF200033674 | x |
| 16 | Télérupteur 230V bipolaire inverseur | AF200033440 | x |
| 17 | Transformateur mono 200VA 400/230V | AF270010501 | x |
| 18 | Borne 6 $mm^2$ vert jaune | AF200030274 | |
| 19 | Borne sans vis 3 x 2,5 $mm^2$ | AF200033794 | |
| 20 | Cloison de borne terminale | AF200033795 | |
| 21 | Peigne liaison 2,5 $mm^2$ 10 pôles | AF200033796 | |
| 22 | Serre Câble 95 $mm^2$ | AF200033049 | |
| 23 | Fusible 10 x 38 1A gi | AF200033203 | x |
| 24 | Fusible 10 x 38 2A am | AF200033722 | x |
| 25 | Fusible 10 x 38 8A am | AF200030523 | x |
| 26 | Fusible 10 x 38 16A gi | AF200033146 | x |
| 27 | Barette de pontage tri 20 appareils 96A | AF200033801 | |

## 8.26. ELECTRIC M2E 208/230V ELECTRICAL CABINET BACK PARTS LIST





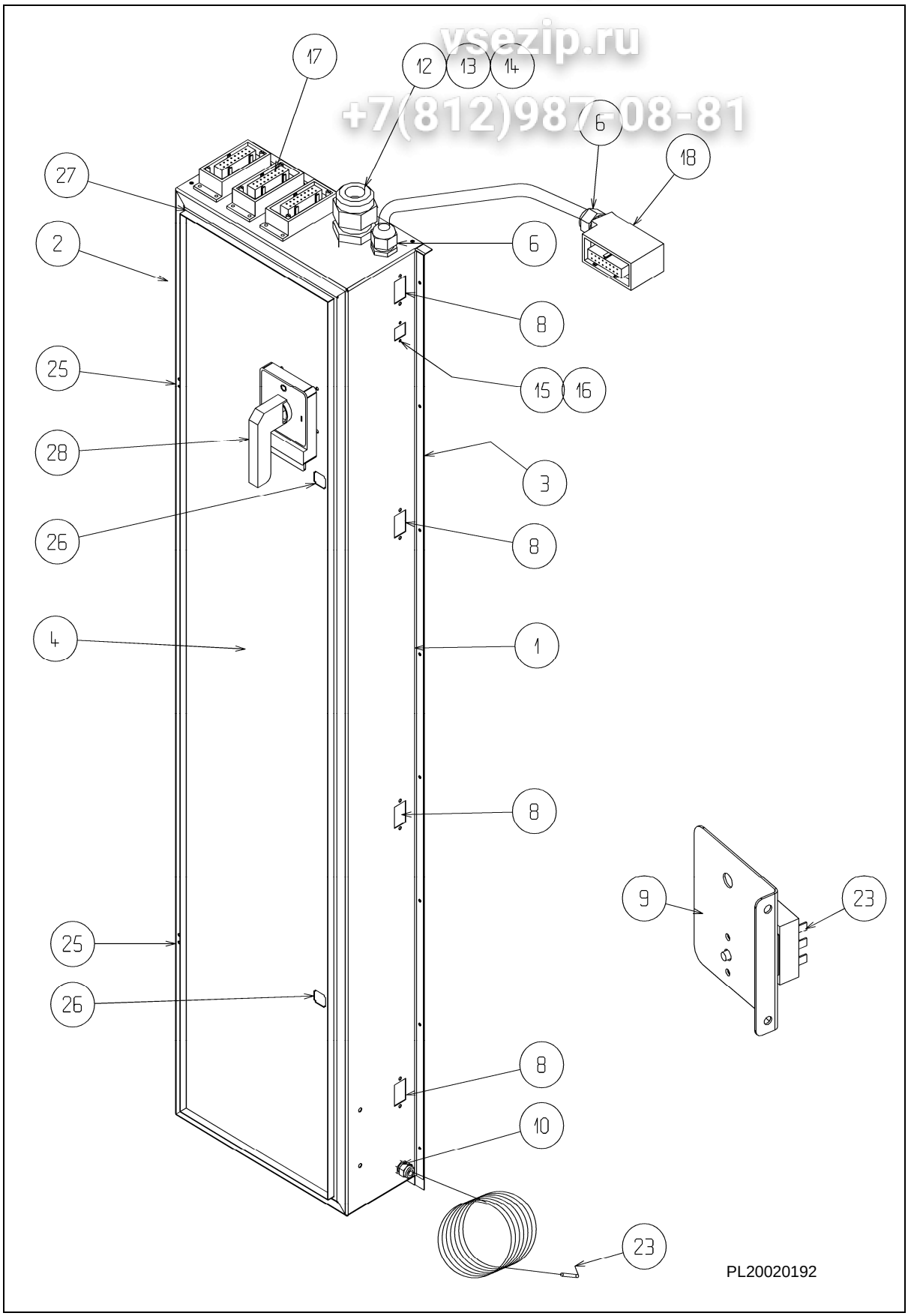
## Electric M2 208/230V electrical cabinet back parts list



| Rep. | Désignation | 208/230V | S.A.V. |
|---|---|---|---|
| 1 | Fond coffret | AF220005492 | |
| 2 | Inter sectionneur tri 125A | AF200033741 | |
| 3 | Rallonge d'axe | AF200033576 | |
| 4 | Bornier vert 12 plots | AF200033797 | |
| 5 | Goulotte de cablage | AF200033005 | |
| 6 | Porte fusible 10,3 x 38 | AF200033502 | |
| 7 | Kit d'association 3 pôles | AF200033218 | |
| 8 | Kit d'association 2 pôles | AF200033215 | |
| 9 | Barre de pontage tri 4 appareils 60A | AF200033799 | |
| 10 | Borne de raccordement 25 $mm^2$ | AF200033798 | |
| 11 | Contacteur triphasé 25A 230V | AF270010100 | x |
| 12 | Adjonction inverseur électrique | AF270012000 | |
| 13 | Socle relai 4RT | AF200033711 | |
| 14 | Relai 4RT 10A 230V | AF200033586 | x |
| 15 | Temporisation fond armoire multigamme | AF200033674 | x |
| 16 | Télérupteur 230V bipolaire inverseur | AF200033440 | x |
| 17 | Transformateur mono 200VA 400/230V | AF270010501 | x |
| 18 | Borne 6 $mm^2$ vert jaune | AF200033794 | |
| 19 | Borne sans vis 3 x 2,5 $mm^2$ | AF200033795 | |
| 20 | Cloison de borne terminale | AF200033795 | |
| 21 | Peigne liaison 2,5 $mm^2$ 10 pôles | AF200033796 | |
| 22 | Serre Câble 95 $mm^2$ | AF200033049 | |
| 23 | Fusible 10 x 38 1A gi | AF200033203 | x |
| 24 | Fusible 10 x 38 2A am | AF200033722 | x |
| 25 | Fusible 10 x 38 4A am | AF200033144 | x |
| 26 | Fusible 10 x 38 8A am | AF200030523 | x |
| 27 | Fusible 10 x 38 25A gi | AF200033147 | x |
| 28 | Barette de pontage tri 20 appareils 96A | AF200033801 | |
| 29 | Borne de raccordement 50 $mm^2$ | AF200033806 | |
| 30 | Inter sectionneur tri 250A | AF200033807 | |
| 31 | Commande extérieure frontale 250A | AF200033808 | |

## 8.27. ELECTRIC M1 ELECTRICAL CABINET PARTS LIST



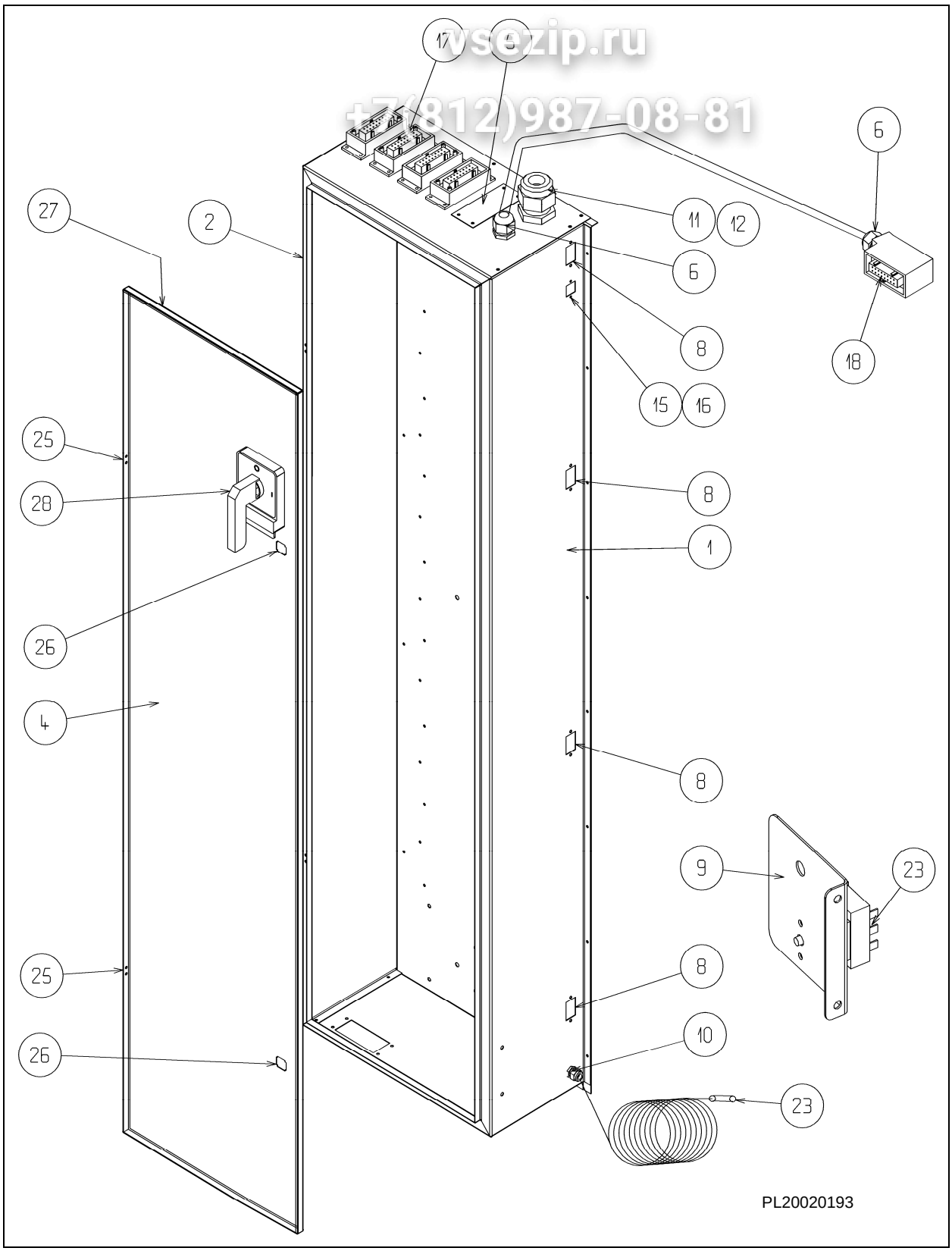


## Electric M1 electrical cabinet parts list

| Rep. | Désignation | M1 | S.A.V. |
|---|---|---|---|
| 1 | Côté droit coffret | AF220005491 | |
| 2 | Côté gauche coffret | AF220005490 | |
| 3 | Fond monté | AF220005741 | |
| 4 | Porte coffret | AF220005493 | |
| 5 | Bouche trou connecteur | | |
| 6 | Presse étoupe 21 plastique | AF200033058 | |
| | Contre écrou 21 plastique | AF200033059 | |
| 8 | Connecteurs moteurs cablés 380V | AF220005709 | |
| | Connecteurs moteurs cablés 230V | AF220005770 | |
| 9 | Support thermostat | AF220005595 | |
| 10 | Presse étoupe 9 plastique | AF200033776 | |
| | Contre écrou 9 plastique | AF200033777 | |
| 11 | Presse étoupe 36 plastique | AF200033087 | |
| 12 | Contre écrou 36 plastique | AF200033094 | |
| 13 | Presse étoupe 29 plastique | AF200033088 | |
| 14 | Réducteur presse étoupe 36-21 | AF200030193 | |
| 15 | Embase 3-4 pôles + terre 10A | AF200033781 | |
| 16 | Insert femelle 4 pôles + terre | AF200033784 | |
| 17 | Connecteur cablé 1mm² 16 plots | AF220005710 | |
| 18 | Connecteur 16 plots coffret plafond | AF220005714 | |
| 23 | Thermostat de sécurité 340°C | AF200033362 | x |
| 25 | Charnière de porte | AF220005262 | |
| 26 | 1/4 de tour serrure | AF220005265 | |
| 27 | Joint de porte | AF220005290 | |
| 28 | Poignée intersectionneur 380V | AF200033578 | |
| | Poignée intersectionneur 230V | AF200033578 | |

## 8.28. M2 ELECTRICAL CABINET PARTS LIST



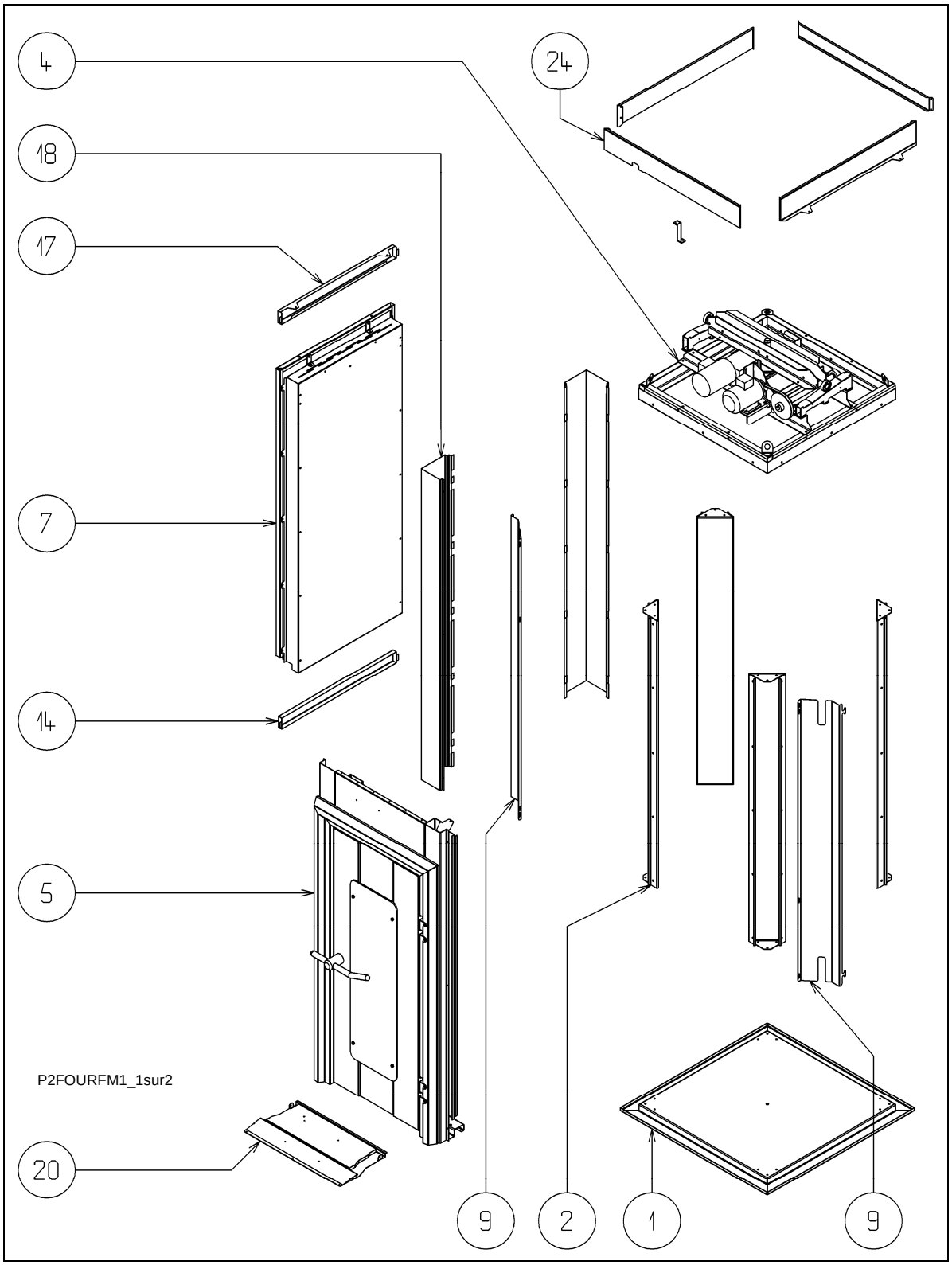


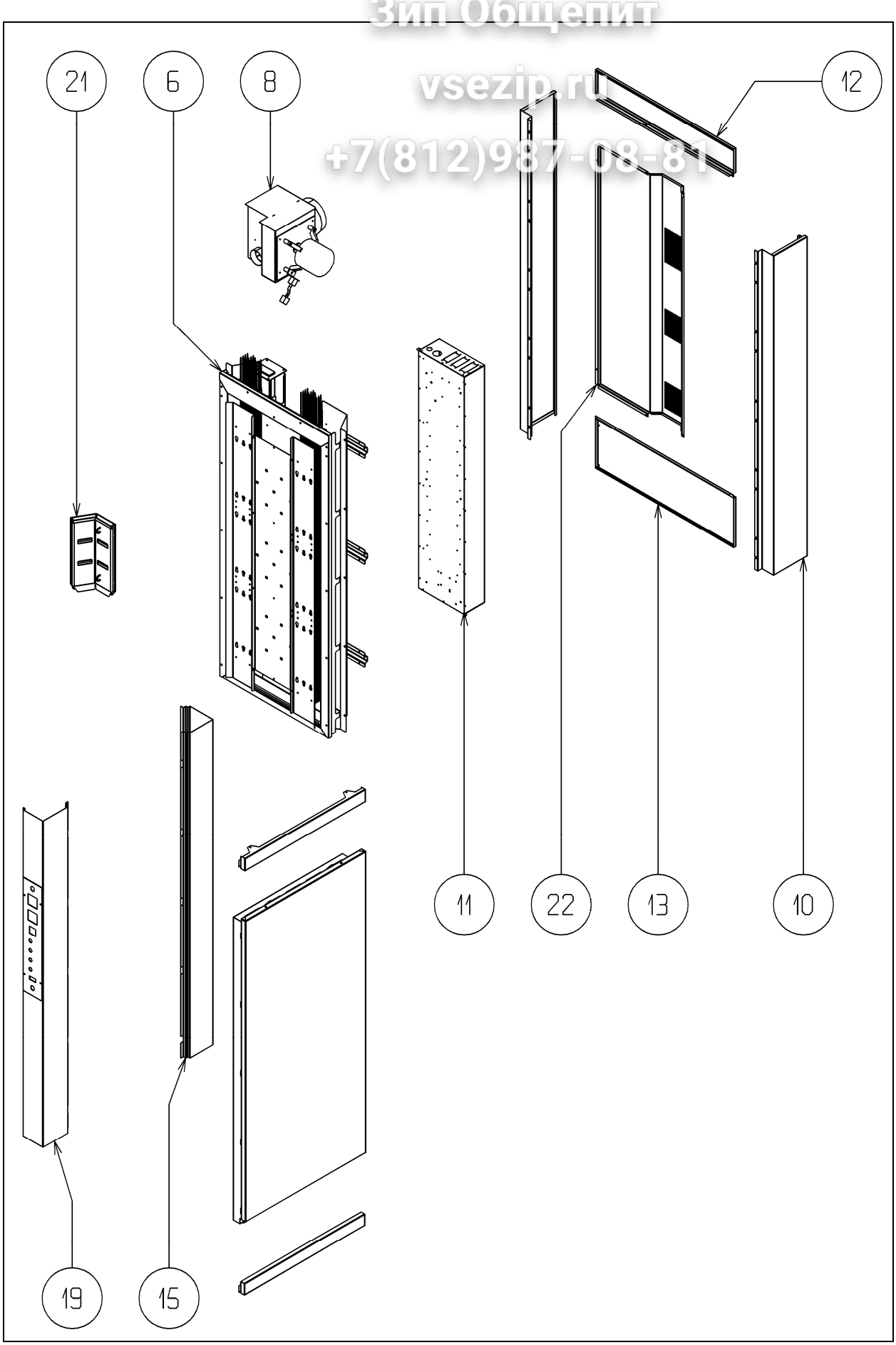
## M2 electrical cabinet parts list

| Rep. | Désignation | M2 | S.A.V. |
|---|---|---|---|
| 1 | Côté droit coffret | AF220005597 | |
| 2 | Côté gauche coffret | AF220005599 | |
| 3 | Fond monté | AF220005742 | |
| 4 | Porte coffret | AF220005596 | |
| 5 | Bouche trou connecteur | AF220005598 | |
| 6 | Presse étoupe 21 plastique | AF200033058 | |
| | Contre écrou 21 plastique | AF200033059 | |
| 8 | Connecteurs moteurs cablés 380V | AF220005709 | |
| | Connecteurs moteurs cablés 230V | AF220005770 | |
| 9 | Support thermostat | AF220005595 | |
| 10 | Presse étoupe 9 plastique | AF200033776 | |
| | Contre écrou 9 plastique | AF200033777 | |
| 11 | Presse étoupe 36 plastique | AF200033087 | |
| 12 | Contre écrou 36 plastique | AF200033094 | |
| 13 | Presse étoupe 29 plastique | | |
| 14 | Réducteur presse étoupe 36-21 | | |
| 15 | Embase 3-4 pôles + terre 10A | AF200033781 | |
| 16 | Insert femelle 4 pôles + terre | AF200033784 | |
| 17 | Connecteur cablé 1mm² 16 plots | AF220005710 | |
| 18 | Connecteur 16 plots coffret plafond | AF220005714 | |
| 23 | Thermostat de sécurité 340°C | AF200033362 | x |
| 25 | Charnière de porte | AF220005262 | |
| 26 | 1/4 de tour serrure | AF220005265 | |
| 27 | Joint de porte | AF220005290 | |
| 28 | Poignée intersectionneur 380V | AF200033578 | |
| | Poignée intersectionneur 230V | AF200033808 | |

# 9. EXPLODED VIEWS FOR ASSEMBLY

## 9.1. ELECTRIC OVEN

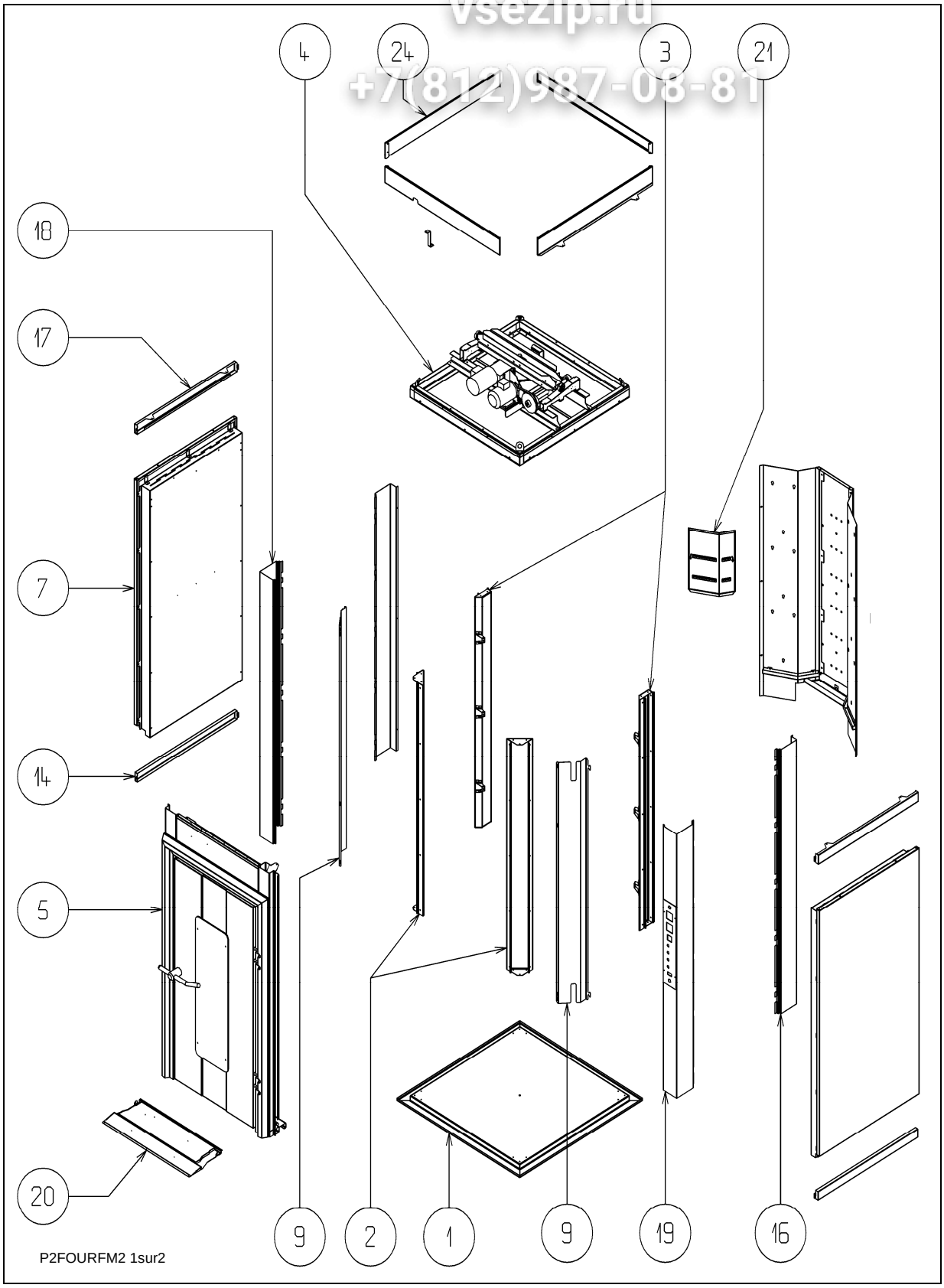


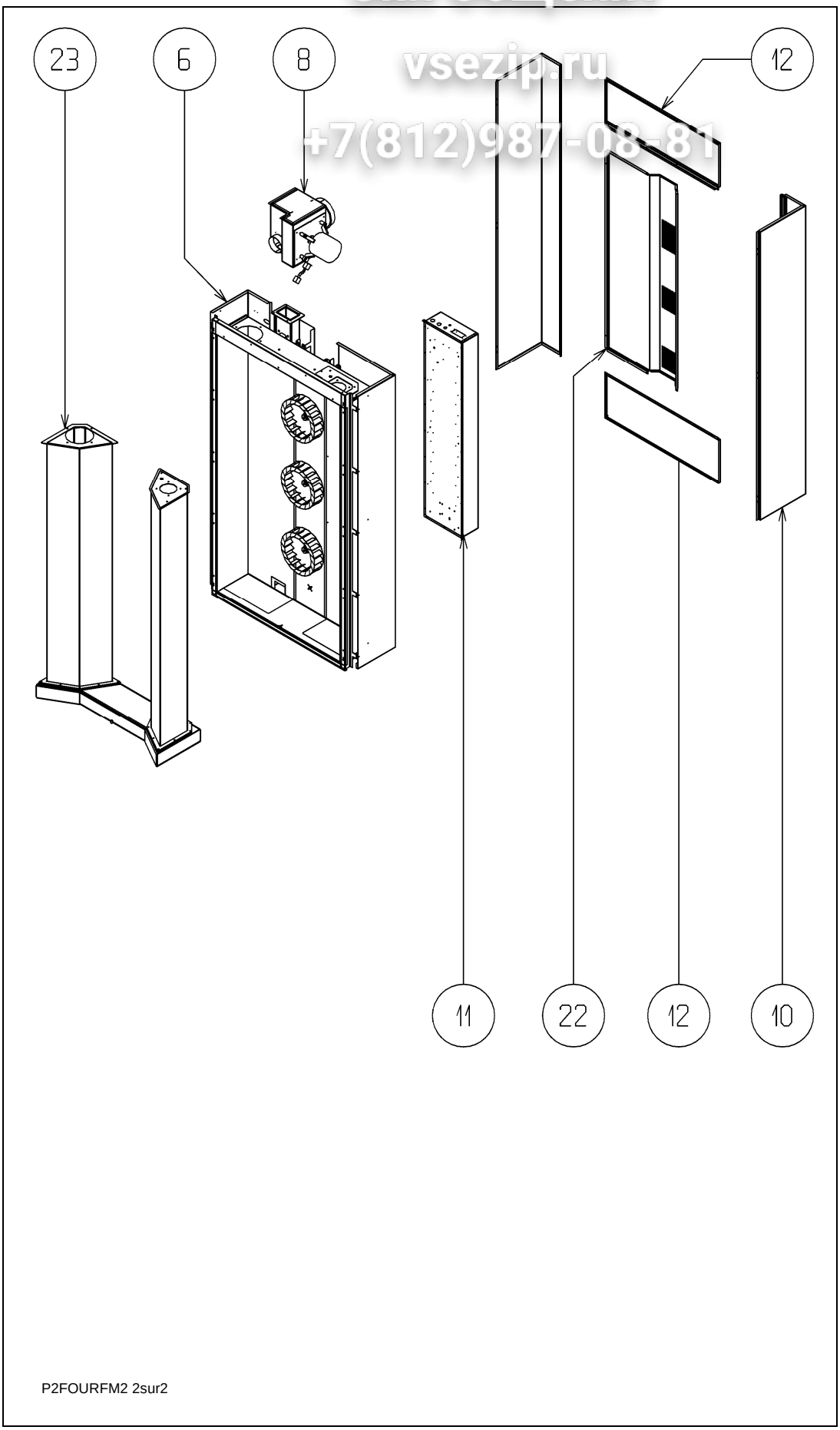


## ELECTRIC OVEN

| Rep. | Désignation | | | M1 | M2 |
|---|---|---|---|---|---|
| 1 | Plancher | | | AF220005151 | AF220005051 |
| 2 | Pilier | | | AF220005176 | AF220005054 |
| 4 | Plafond | Porte droite | 400V | AF220005611 | AF220005612 |
| | | | 208/230V | AF220006590 | AF220006591 |
| | | Porte gauche | 400V | AF220014591 | AF220014593 |
| | | | 208/230V | AF220014590 | AF220014592 |
| 5 | Bloc porte | | droit | AF220005600 | AF220005601 |
| | | | gauche | AF220014520 | AF220014540 |
| 6 | Bloc chauffe | | 50Hz | AF220005607 | AF220005608 |
| | | | 60Hz | AF220006650 | AF220006651 |
| 7 | Panneau | | | AF220005192 | AF220005135 |
| 8 | Extracteur | | | AF220005604 | AF220005605 →10/00 |
| | | | | | →11/00: AF220006670 |
| 9 | Tôle calorifuge avant | | | AF220005439 | AF220005446 |
| 10 | Jaquette latérale | | | AF220005687 | AF220005688 |
| 11 | Coffret électrique | | 400 V | AF220005731 | AF220005733 |
| | | | 208/230V | AF220005732 | AF220005734 |
| 12 | Traverse arrière haute | | | AF220005690 | AF220005691 |
| 13 | Traverse arrière basse | | | AF220005692 | AF220005693 |
| 14 | Plinthe | | | AF220005183 | AF220005120 |
| 15 | Angle arrière | | | AF220005199 | AF220005121 |
| 17 | Bandeau | | | AF220005184 | AF220005122 |
| 18 | Angle avant | | | AF220005148 | AF220005124 |
| 19 | Angle avant droit câblé | | 50 Hz | AF220005715 | AF220005726 |
| | | | 60 Hz | AF220005782 | AF220005783 |
| | Angle avant gauche câblé | | 50 Hz | AF220005737 | AF220005738 |
| | | | 60 Hz | AF220005785 | AF220005786 |
| 20 | Pan incliné | | Porte droite | AF220005626 | AF220005627 |
| | | | Porte gauche | AF220014500 | AF220014506 |
| 21 | Boîte à buée | | | AF220005668 | AF220005670 |
| 22 | Jaquette arrière | | | AF220005699 | AF220005128 |
| 24 | Ceinture supérieure | | | | |
| | **COMPRENANT** | | | | |
| | Ceinture avant | | Porte droite | AF220005655 | AF220005658 |
| | | | Porte gauche | AF220014580 | AF220014581 |
| | Ceinture latérale | | | AF220005656 | AF220005659 |
| | Ceinture arrière | | | AF220005657 | AF220005660 |
| | Support | | | AF220005664 | AF220005664 |

## 9.2. OIL/GAS OVEN REAR





## OIL/GAS OVEN GEAR



| Rep. | Désignation | | | M1 | M2 |
|---|---|---|---|---|---|
| 1 | Plancher | | | AF220005151 | AF220005051 |
| 2 | Pilier standard | | | AF220005176 | AF220005054 |
| 3 | Pilier Mazout/Gaz | | | AF220005470 | AF220005471 |
| 4 | Plafond | Porte droite | 400V | AF220005611 | AF220005612 |
| | | | 208/230V | AF220006590 | AF220006591 |
| | | Porte gauche | 400V | AF220014591 | AF220014593 |
| | | | 208/230V | AF220014590 | AF220014592 |
| 5 | Bloc porte | | Droit | AF220005600 | AF220005601 |
| | | | Gauche | AF220014520 | AF220014540 |
| 6 | Bloc chauffe | | 50Hz | AF220005615 | AF220005616 |
| | | | 60Hz | AF220006655 | AF220006656 |
| 7 | Panneau | | | AF220005192 | AF220005135 |
| 8 | Extracteur | | | AF220005604 | AF220005605 →10/00<br>→11/00 AF220006670 |
| 9 | Tôle calorifuge avant | | | AF220005439 | AF220005446 |
| 10 | Jaquette latérale bloc chauffe | | | AF220005694 | AF220005695 |
| 11 | Coffret électrique | | 400V | AF220005729 | AF220005729 |
| | | | 208/230V | AF220005730 | AF220005730 |
| 12 | Traverse arrière bloc chauffe | | | AF220005697 | AF220005698 |
| 14 | Plinthe | | | AF220005183 | AF220005120 |
| 16 | Angle arrière Mazout/Gaz | | | AF220005570 | AF220005585 |
| 17 | Bandeau | | | AF220005184 | AF220005122 |
| 18 | Angle avant | | | AF220005148 | AF220005124 |
| 19 | Angle avant droit câblé | | 50 Hz | AF220005715 | AF220005726 |
| | | | 60 Hz | AF220005782 | AF220005783 |
| | Angle avant gauche câblé | | 50 Hz | AF220005737 | AF220005738 |
| | | | 60 Hz | AF220005785 | AF220005786 |
| 20 | Pan incliné | Porte droite | | AF220005626 | AF220005627 |
| | | Porte gauche | | AF220014500 | AF220014506 |
| 21 | Boîte à buée | | | AF220005669 | GA AF220005671<br>DR AF220005672 |
| 22 | Jaquette arrière bloc chauffe | | | AF220005699 | AF220005699 |
| 23 | Echangeur | | | AF220005619 | AF220005620 |
| 24 | Ceinture supérieure | | | | |
| | **COMPRENANT** | | | | |
| | Ceinture avant | Porte droite | | AF220005655 | AF220005658 |
| | | Porte gauche | | AF220014580 | AF220014581 |
| | Ceinture latérale | | | AF220005656 | AF220005659 |
| | Ceinture arrière | | | AF220005657 | AF220005660 |
| | Support | | | AF220005664 | AF220005664 |



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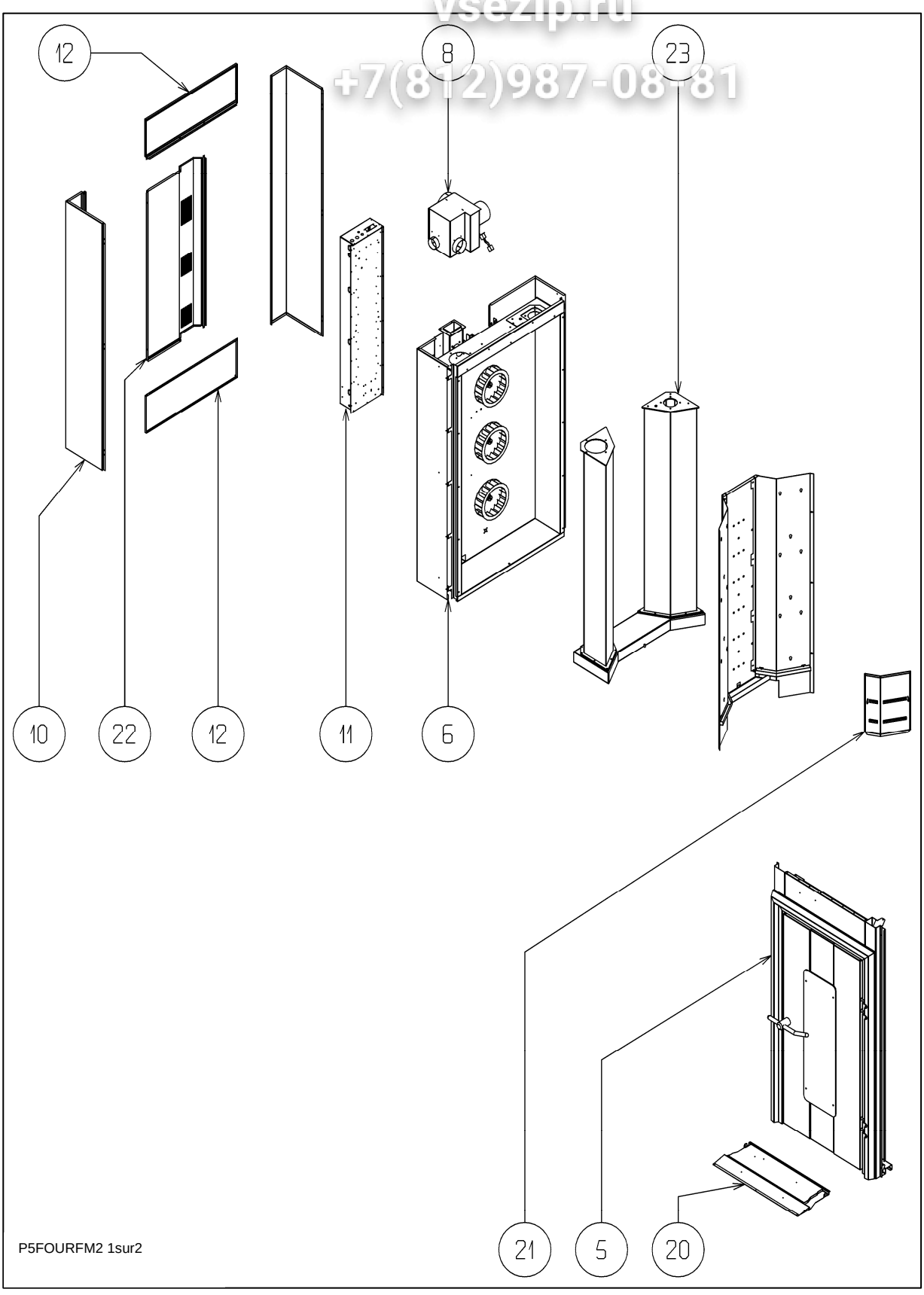
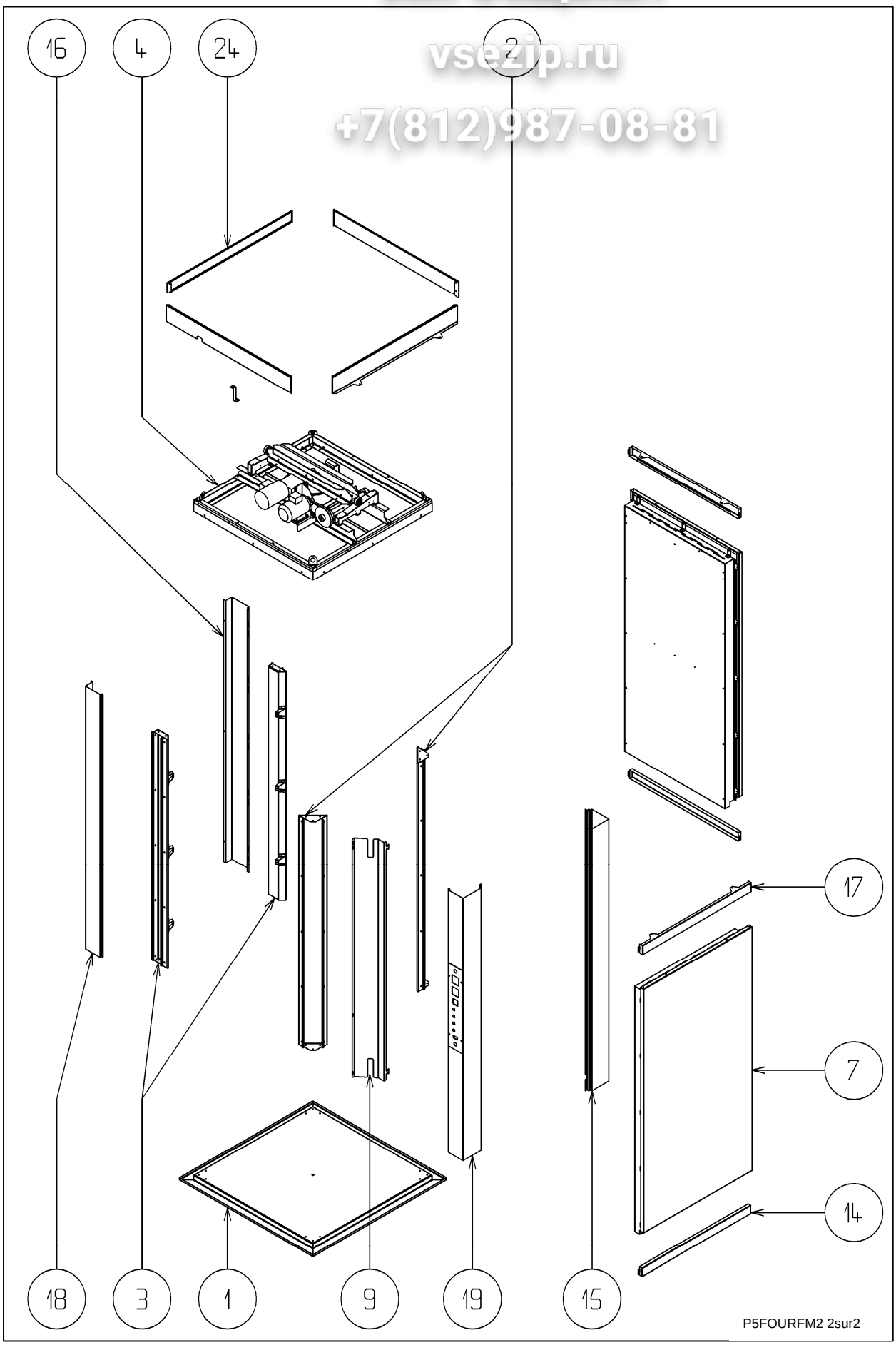
## 9.3. OIL/GAS OVEN SIDE





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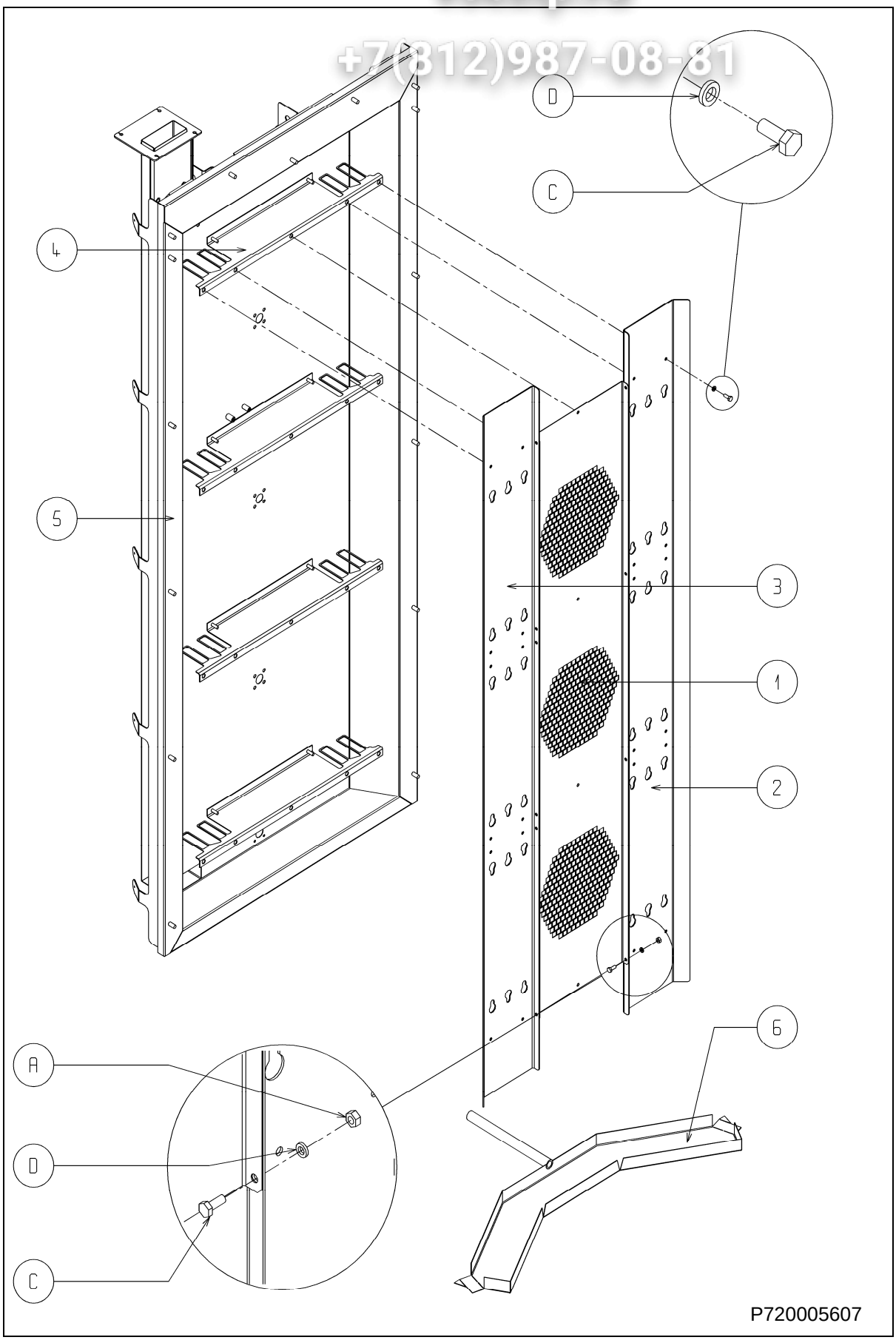
## OIL/GAS OVEN SIDE

| Rep. | Désignation | | | M1 | M2 |
|---|---|---|---|---|---|
| 1 | Plancher | | | AF220005151 | AF220005051 |
| 2 | Pilier standard | | | AF220005176 | AF220005054 |
| 3 | Pilier Mazout/Gaz | | | AF220005470 | AF220005471 |
| 4 | Plafond | Porte droite | 400V | AF220005611 | AF220005612 |
| | | | 208/230V | AF220006590 | AF220006591 |
| | | Porte gauche | 400V | AF220014591 | AF220014593 |
| | | | 208/230V | AF220014590 | AF220014592 |
| 5 | Bloc porte | | droit | AF220005600 | AF220005601 |
| | | | gauche | AF220014520 | AF220014540 |
| 6 | Bloc chauffe | | 50Hz | AF220005615 | AF220005616 |
| | | | 60Hz | AF220006655 | AF220006656 |
| 7 | Panneau | | | AF220005192 | AF220005135 |
| 8 | Extracteur | | | AF220005604 | AF220005605 →10/00 |
| | | | | | →11/00: AF220006670 |
| 9 | Tôle calorifuge avant | | | AF220005439 | AF220005446 |
| 10 | Jaquette latérale bloc chauffe | | | AF220005694 | AF220005695 |
| 11 | Coffret électrique | | 400V | AF220005729 | AF220005729 |
| | | | 208/230V | AF220005730 | AF220005730 |
| 12 | Traverse arrière bloc chauffe | | | AF220005697 | AF220005698 |
| 14 | Plinthe | | | AF220005183 | AF220005120 |
| 15 | Angle arrière | | | AF220005199 | AF220005121 |
| 16 | Angle arrière Mazout/Gaz | | | AF220005570 | AF220005585 |
| 17 | Bandeau | | | AF220005184 | AF220005122 |
| 18 | a) Angle avant Mazout/Gaz | | | AF220005587 | AF220005572 |
| | b) Angle avant GAU câblé | | 50 Hz | AF220005737 | AF220005738 |
| | | | 60 Hz | AF220005785 | AF220005786 |
| 19 | a) Angle avant DROIT câblé | | 50 Hz | AF220005715 | AF220005726 |
| | | | 60 HZ | AF220005782 | AF220005783 |
| | b) Angle avant Mazout/Gaz | | | AF220005587 | AF220005572 |
| 20 | Pan incliné | Porte droite | | AF220005626 | AF220005627 |
| | | Porte gauche | | AF220014500 | AF220014506 |
| 21 | Boite à buée | | | AF220005669 | GA AF220005671 |
| | | | | | DR AF220005672 |
| 22 | Jaquette arrière bloc chauffe | | | AF220005699 | AF220005699 |
| 23 | Echangeur | | | AF220005619 | AF220005620 |
| 24 | Ceinture supérieure | | | | |
| | **COMPRENANT** | | | | |
| | Ceinture avant | Porte droite | | AF220005655 | AF220005658 |
| | | Porte gauche | | AF220014580 | AF220014581 |
| | Ceinture latérale | | | AF220005656 | AF220005659 |
| | Ceinture arrière | | | AF220005657 | AF220005660 |
| | Support | | | AF220005664 | AF220005664 |

a) Heating unit on the left
b) Heating unit on the right

## 9.4. ELECTRIC HEATING UNIT

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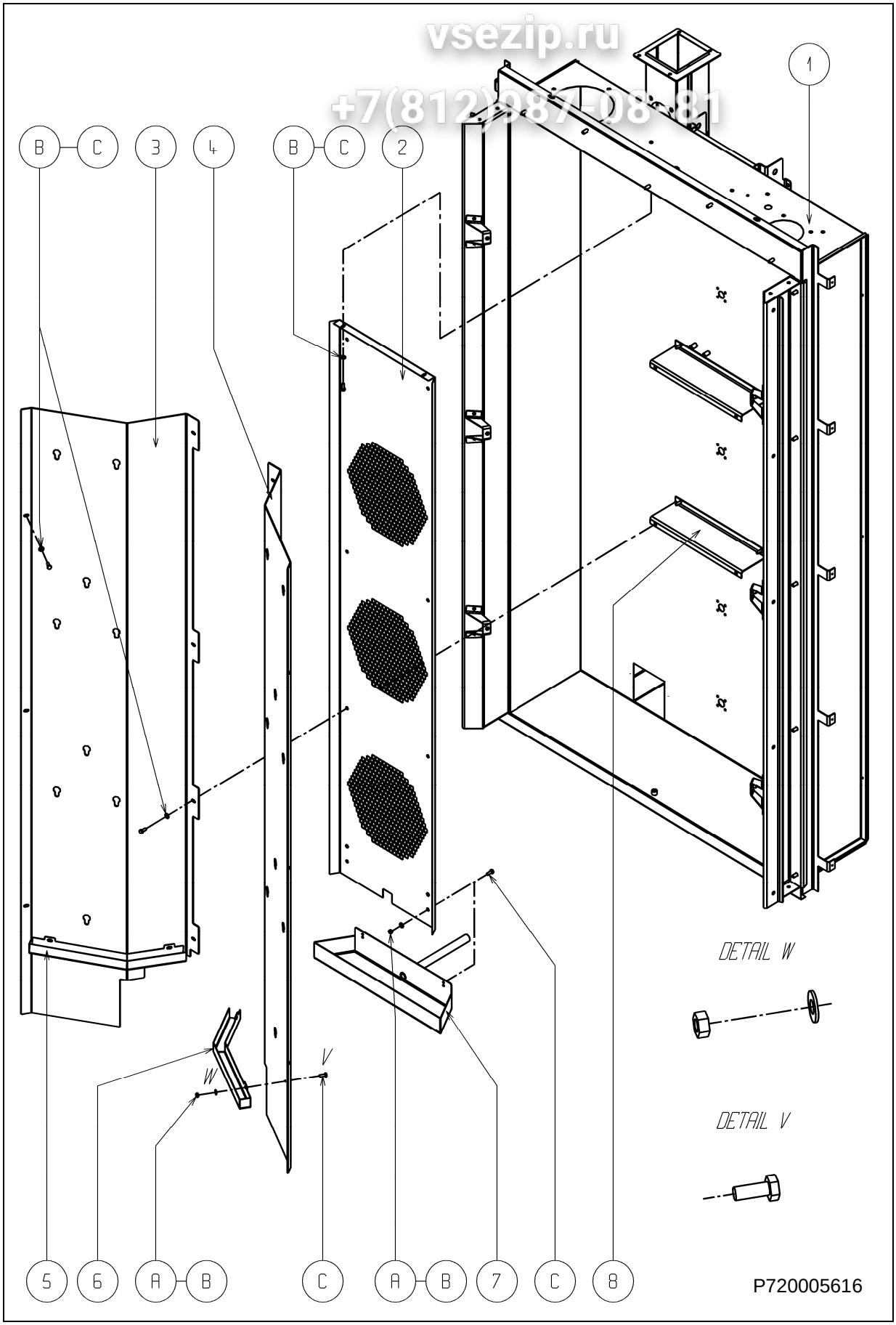
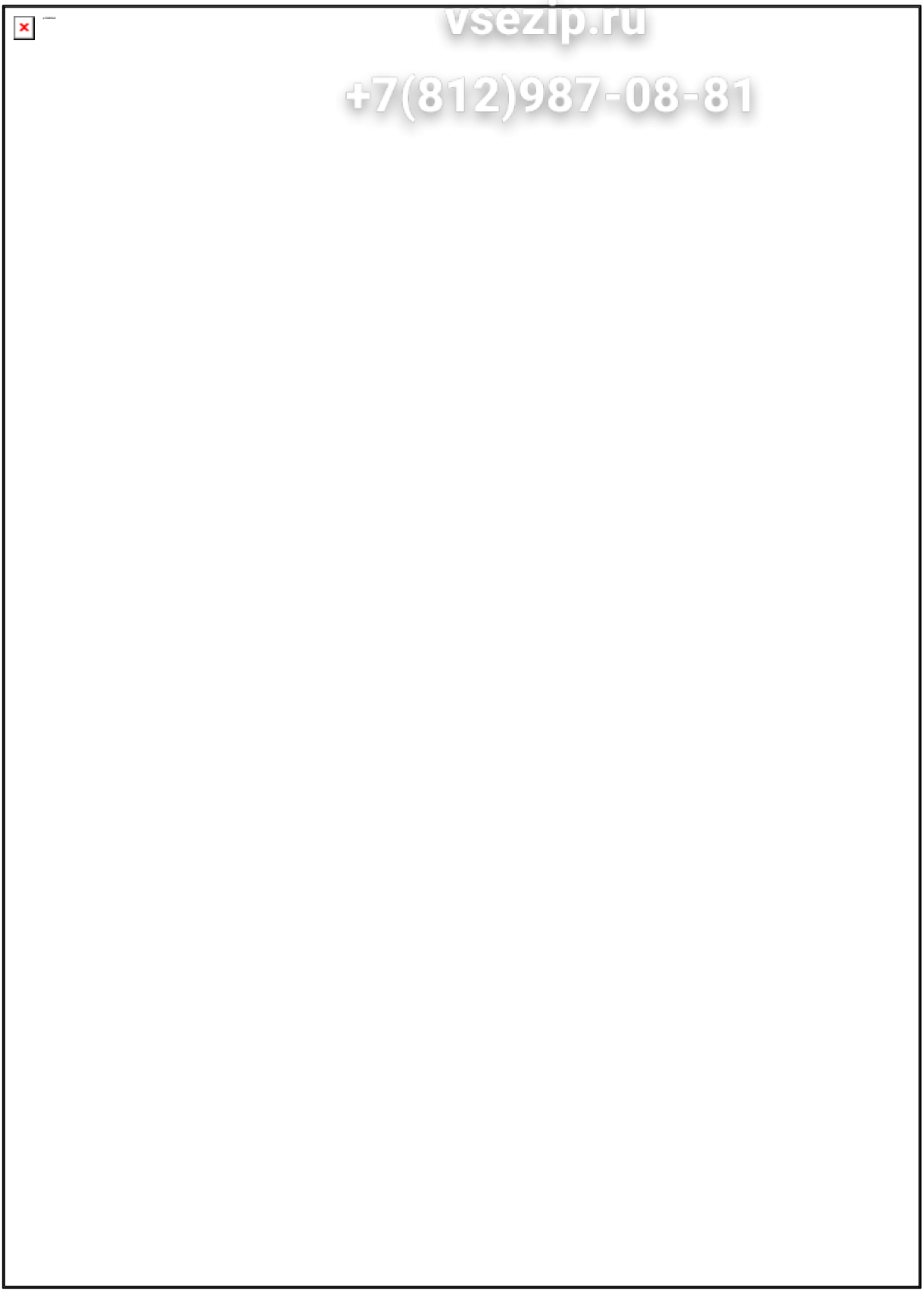
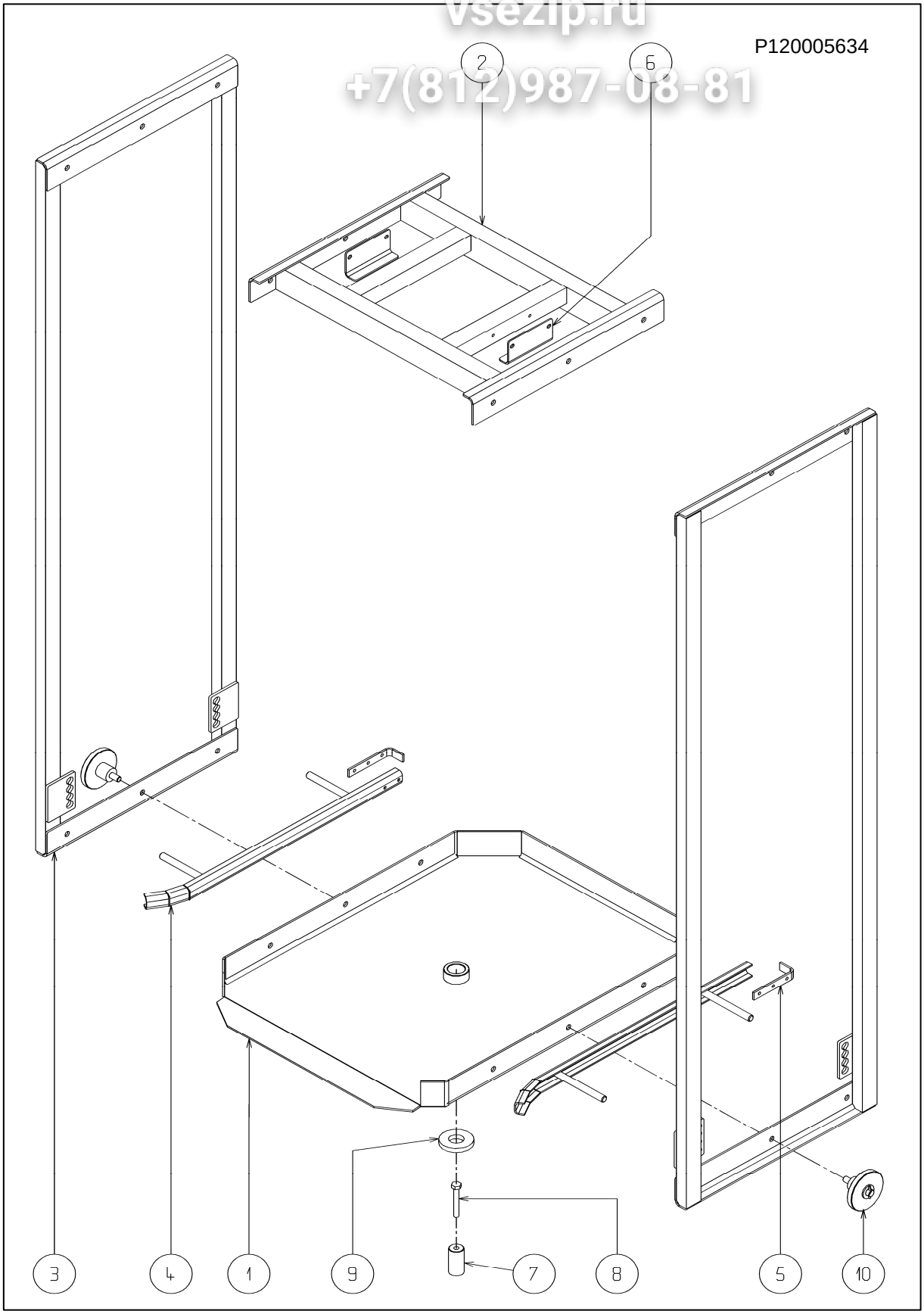
## 9.5. OIL/GAS HEATING UNIT



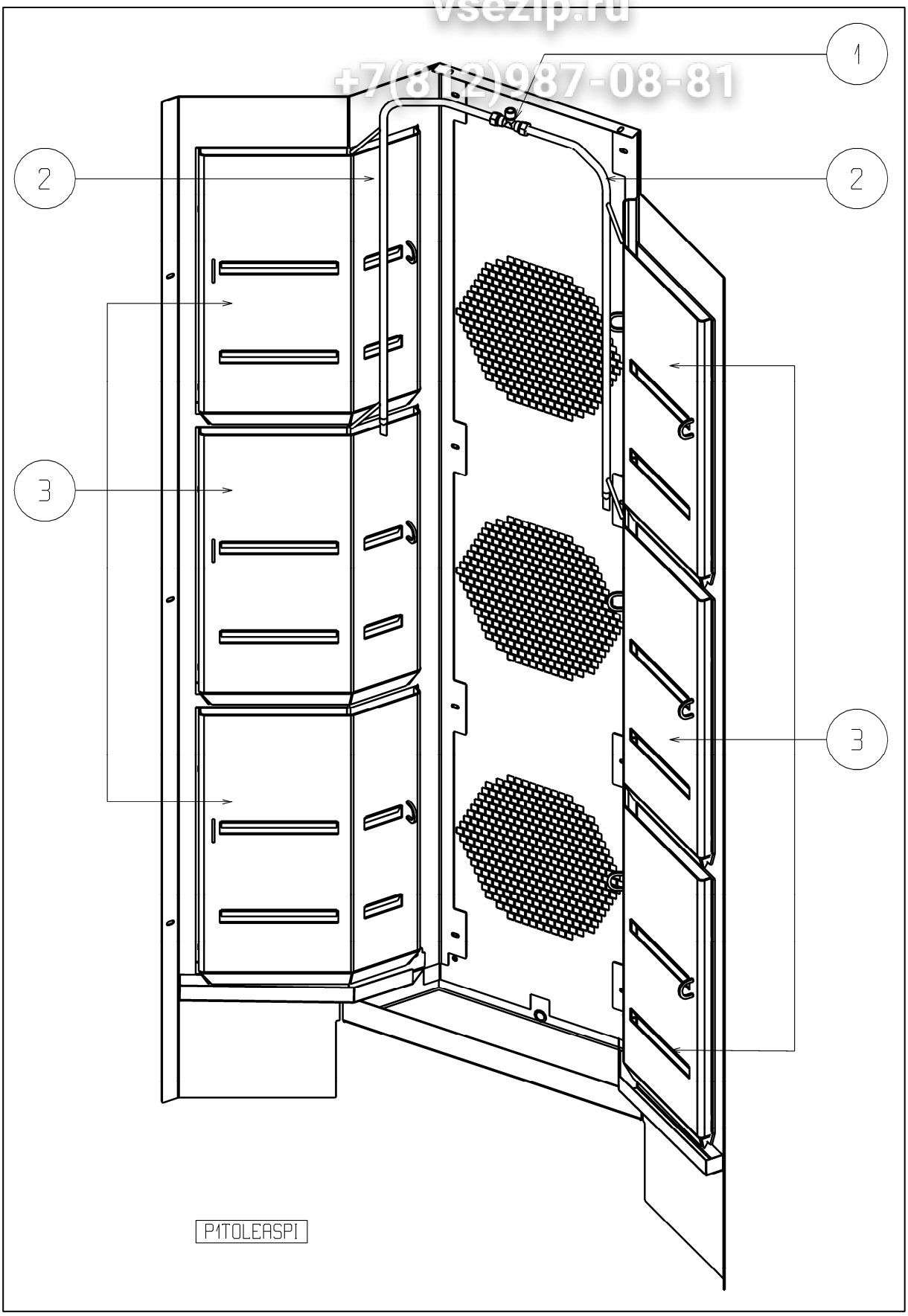
## 9.6. HEAT EXCHANGER



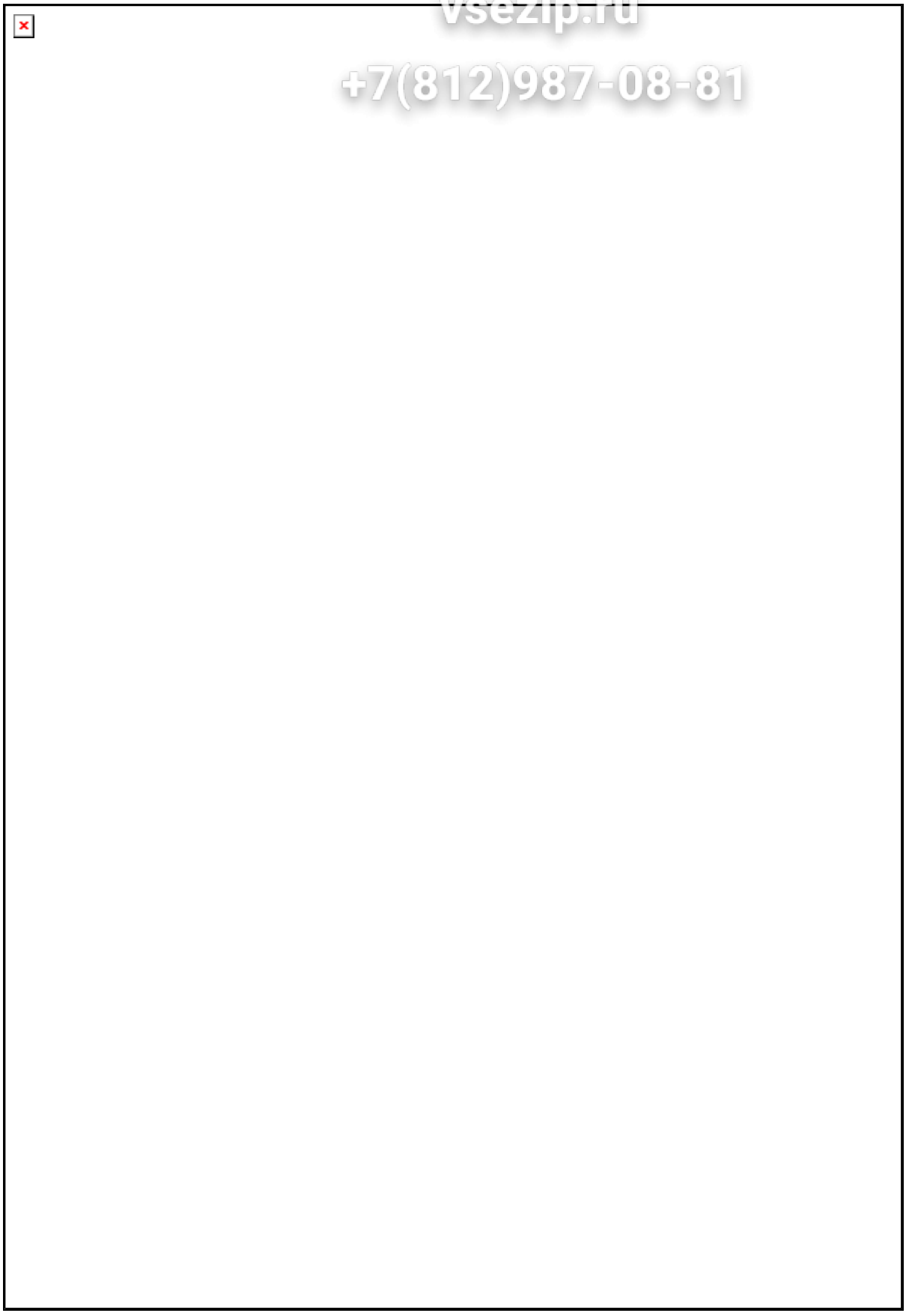
## 9.7. SQUIRREL CAGE



## 9.8. OIL/GAS M1-M2 STEAM GENERATOR

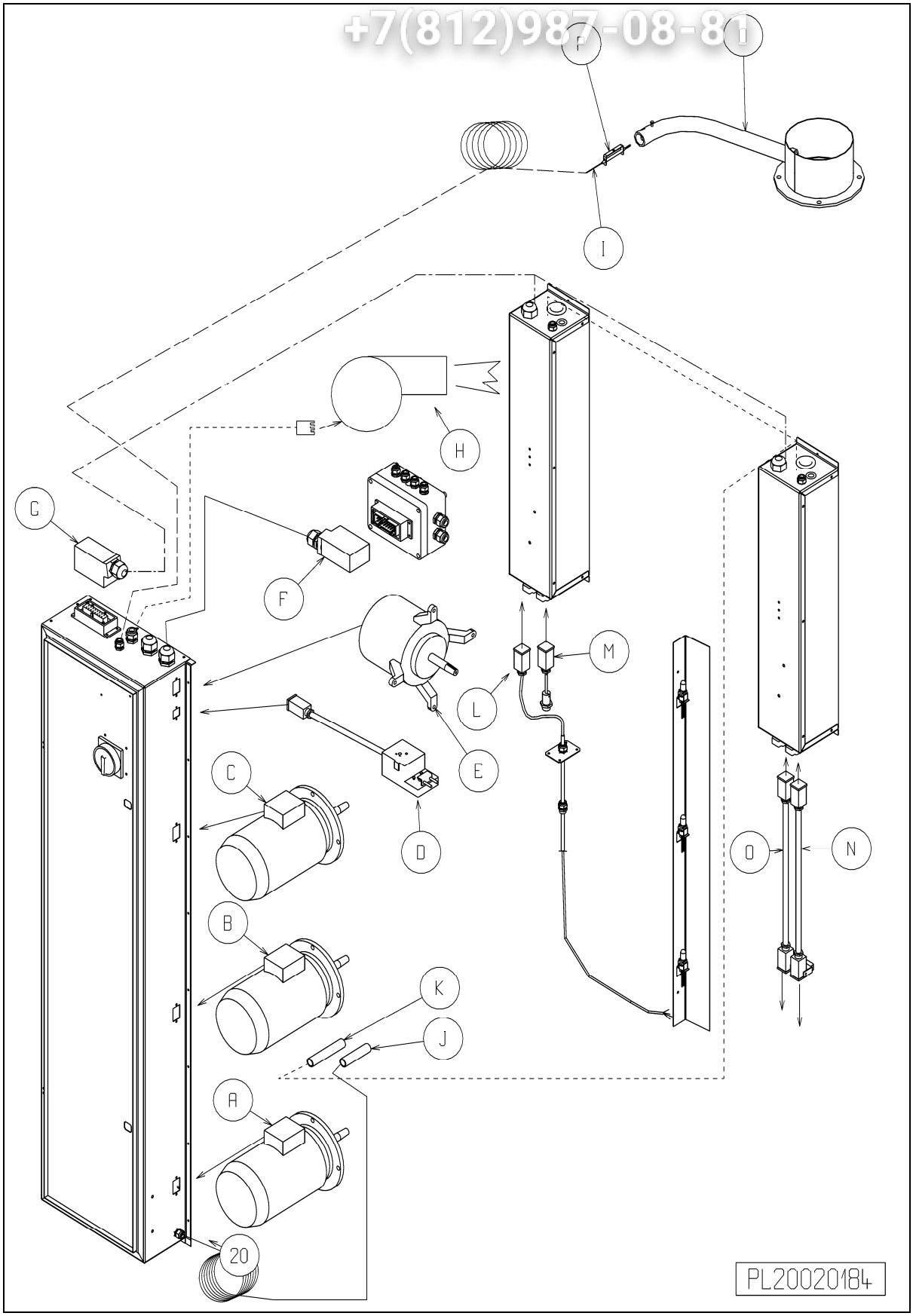


## 9.9. ELECTRIC M1-M2 STEAM GENERATOR

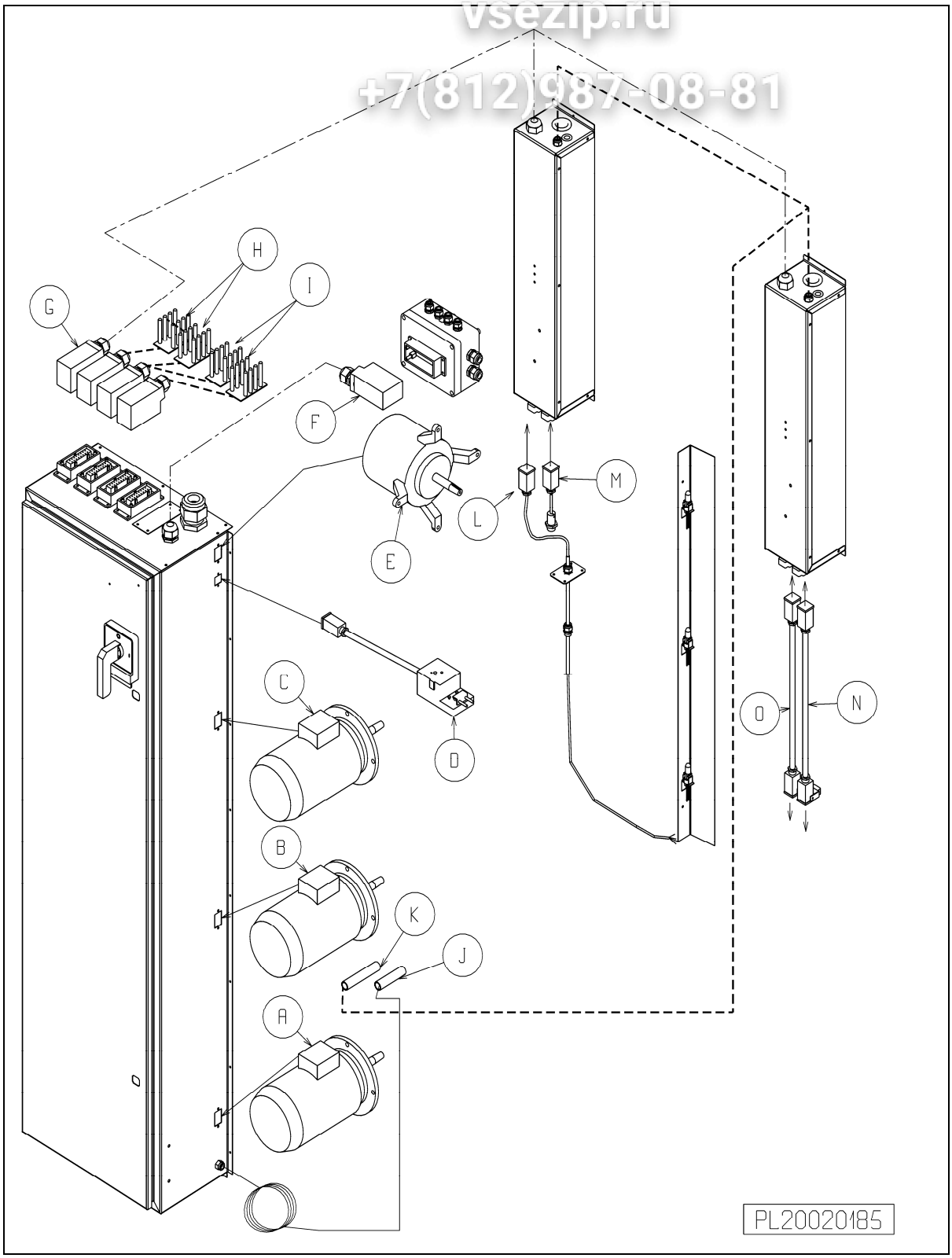


## 9.10. ELECTRICAL CONNECTIONS

### OIL/GAS CRISTAL M1 M2



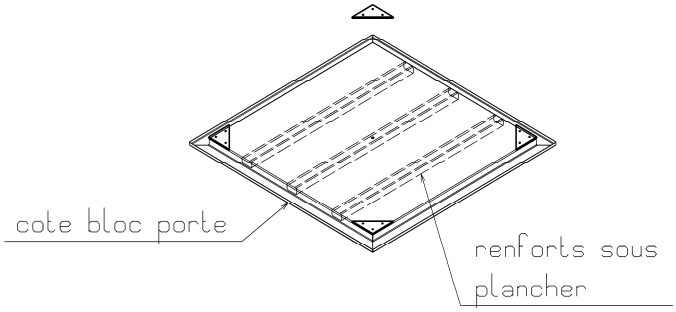
## ELECTRIC CRISTAL M1-M2



# 10.ASSEMBLY

| | | |
|---|---|---|
| **1** | **Bottom** | **No. 1 page** Erreur ! Signet non défini.**, 121 or 124.** |

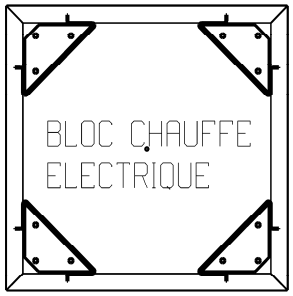
To fix the 4 triangular seals (AF2200005527),
With on top and bottom a HT black silicone cordon (AF200055070),.



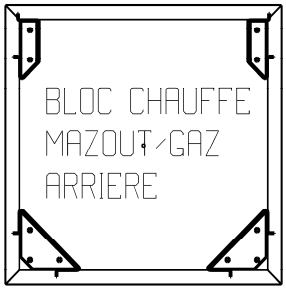

| | | |
|---|---|---|
| **2** | **Posts** | **No. 2 and 3 page** Erreur ! Signet non défini.**, 121 or 124.** |

4 identical on electric ovens. / 2 + 2 on oil/gas ovens.

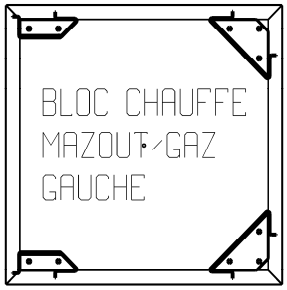
- Assemble using M8 collar nuts. - DO NOT TIGHTEN -




COTE PORTE



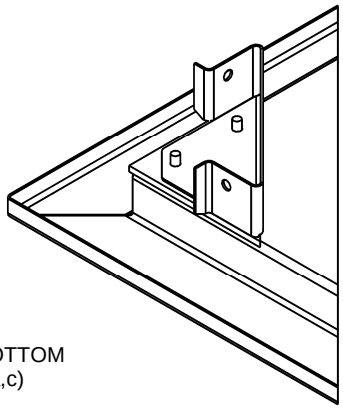

COTE PORTE




COTE PORTE

P3 BOTTOM
(a,b,c)

- The vertical sides of the posts must not protrude from the bottom.



P3 BOTTOM
(a,c)



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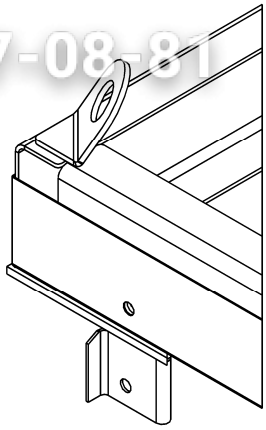
| | | |
|---|---|---|
| **3** | **Roof** | **No.4 page** Erreur ! Signet non défini., **121 or 124.** |

– Thoroughly soak the 4 triangular seals with HERMETIC.

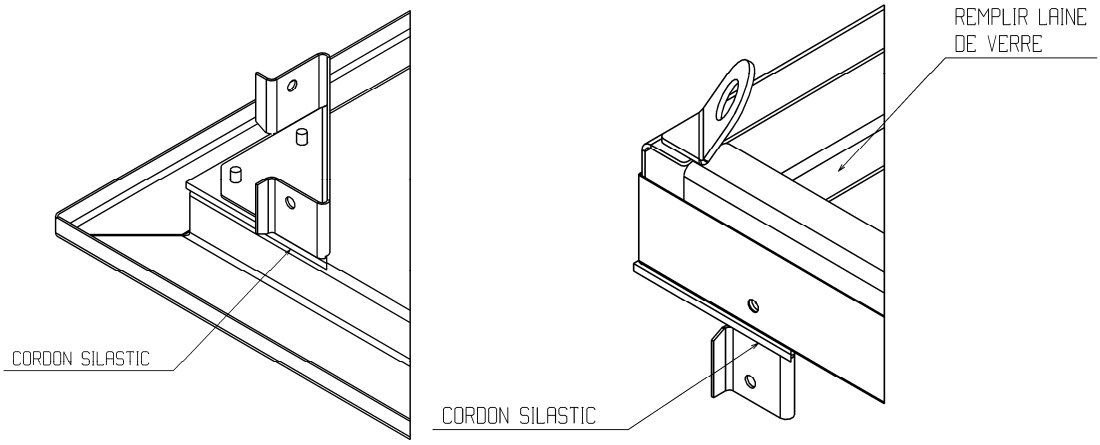
– For an oven **with RIGHT door**, place the reducing engine in front
– For an oven **with LEFT door**, place the reducing engine in the back

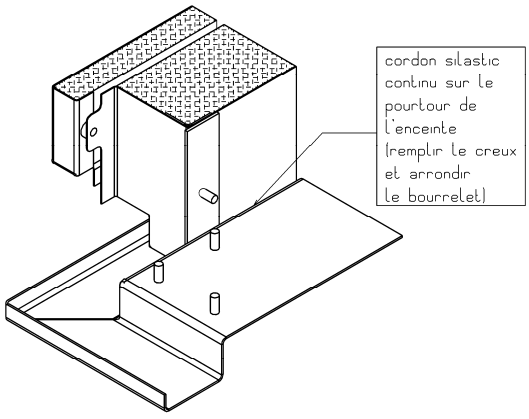
– Assemble with M8 collar nuts and zinc-coated HM8x25 screws - DO NOT TIGHTEN-



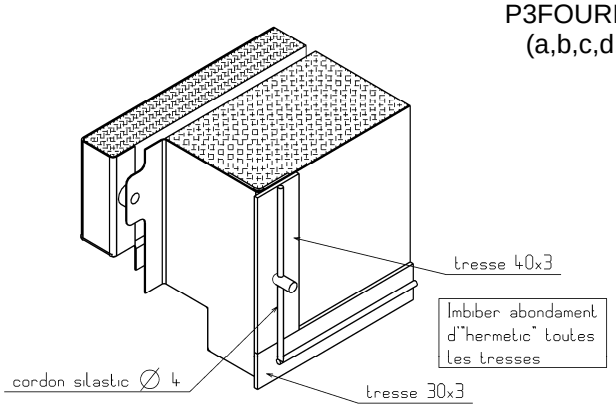
| | | |
|---|---|---|
| **4** | **First panel** | **No.7 page** Erreur ! Signet non défini., **121 or 124.** |

– Check the floor-columns-ceiling diagonals.
– Thoroughly soak the packing on the 4 sides with HERMETIC.
– Apply a continuous joint of SILICONE PUTTY over it.
– Adjust the triangular seals. Apply a joint of SILICONE PUTTY at the junction point.
– Assemble with M8 collar nuts - DO NOT TIGHTEN -




P3FOURFM1
(a,b,c,d,e)



| | | |
|---|---|---|
| **5** | **Door unit** | **no. 5 page** Erreur ! Signet non défini.**, 121 or 124.** |

Same as for 1st panel

| | | |
|---|---|---|
| **6** | **Heating unit** | **no.6 page** Erreur ! Signet non défini.**, 121 or 124.** |

Same as above.

When handling, always remove the electrical cabinet from the heating unit (temporary fixing, 2 nuts inside).

| | | |
|---|---|---|
| **7** | **Heat exchanger** | **Page 129** |

ON OIL/GAS OVENS before closing the enclosure, install the factory-assembled heat exchanger.

**Burner side:**

- 2 felt seals (no.7) for M1 ovens inside and outside the oven.
- 1 felt seal (no.7) for M2 ovens, inside the oven + 1 felt seal (no.11) on the outside.
- Thoroughly soak them with Hermetic on both sides.
- 1 burner base (5).
- Assemble with 4 HM 8*40 screws (E)
- HM8 collar nuts (F)
- Then install the backplate (8), attached with HM 8*40 screws (E) (only applicable for M2 ovens).
- HM8 collar nuts (F)

**Smoke outlet side:**

- 1 felt seal (3) inside the oven
- 1 felt seal (3) outside the oven
- 1 smoke outlet (4) pipe diam. 34 towards the back
- Assemble with HM 8*40 screws (E)
- HM8 collar nuts (F)

DO NOT FORGET THE LOWER PIN (10)

| | | |
|---|---|---|
| **8** | **Squirrel cage frame** | **no. 2 page , 130** |

ON OVENS WITH SQUIRREL CAGE:

Before closing the enclosure (2nd panel), install the top frame no.2 and the 2 squares no. 6 with HM 8x16 screws + Grower washer ∅8. To do this, partially release the rack supporting disc inside the oven if necessary. For easier assembly, the squirrel cage must be installed only after assembling the steam generators, phase 21.

No. 1, 2, 3, 10 with HM 12x25 screws, HM12 nut, Grower D.12 washer.
No. 4, with HM 14 nut, M14 thin nut.
No. 5, with F/90 M6x20 screws, M6 collar nut.

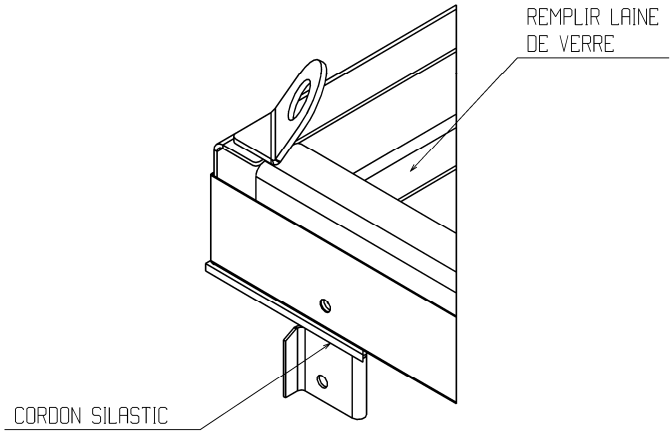
No. 7, centre finder on the bottom with HM 10x80 screws.

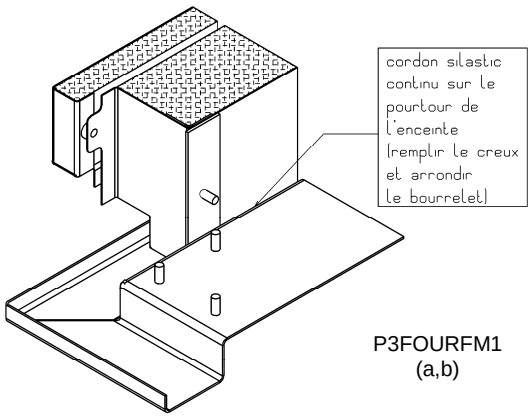
| | | |
|---|---|---|
| **9** | **Second panel** | **no. 7 page** Erreur ! Signet non défini.**, 121 or 124.** |

Same as above.

**TIGHTEN THE ENTIRE ENCLOSURE -**

- Seal the enclosure.
- Complete the roof insulation with rock wool.




| | | |
|---|---|---|
| **10** | **Steam exhaust fan** | **No. 8 page** Erreur ! Signet non défini.**, 121 or 124.** |

Rear view of the heating unit, steam exhaust fan motor on the left.
On a flat seal, apply a joint of SILICONE PUTTY on the top and underneath.

| | | |
|---|---|---|
| **11** | **Front heat-insulating sheet** | **No.9 page** Erreur ! Signet non défini.**, 121 or 124.** |

- On all oven models: 2 parts door unit side. Except for oil/gas ovens, side heating unit: 1 part control panel side.
- Insulate the corner post(s) with ROCK WOOL.
- Snap one side in, fasten to the door unit with zinc coated 3.9x10 sheet metal screws.

| | | |
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| **12** | **Heating unit side panel** | **Rep.10 page** Erreur ! Signet non défini.**, 121 ou 124** |

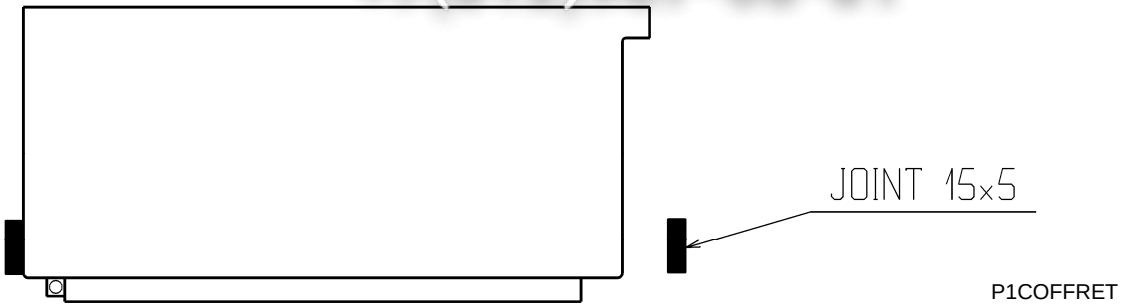
**For all oven models**: 2 parts 40mm above the floor.

**For electric ovens**: loosen the 5 screws with bakelite insulating washers on each side, snap the panels in between the screws and washers, tighten the screws.

**For oil/gas ovens**: on each side of the heating unit side screws, place 3 bakelite insulating washers, assemble the panels, fix them temporarily with M6 cover nuts.

| | | |
|---|---|---|
| **13** | **Electrical cabinet** | **No.11 page** Erreur ! Signet non défini.**, 121 or 124** |

- Affix a vertical foam strip on either side of the cabinet front edge, along its entire height.




- Attach the cabinet to the heating unit with 6 x M6 collar nuts.

| | | |
|---|---|---|
| **14** | **Rear cross members** | **No. 12 and 13 page** Erreur ! Signet non défini.**, 121 or 124** |

- Attached to the heating unit side panel with stainless steel CB Hc 6x12 screws and stainless steel CB Hc 6x40 screws.

| | | |
|---|---|---|
| **15** | **Rear angles and plinths** | **No. 14,15 and 16 page** Erreur ! Signet non défini.**, 121 or 124** |

- Attach the plinth to the rear angle then clip the rear angle on to the bakelite insulating washers.
- For oil/gas ovens only: attach plinth no. 14 to rear angle no. 16, then the rear angle to the heating unit bakelite insulating washers. Finally, attach the stainless steel angle over the panel and tighten the M6 cover nuts.

| | | |
|---|---|---|
| **16** | **Band** | **no.17 page** Erreur ! Signet non défini.**, 121 or 124** |

- Temporarily attach the bands to the rear angles.

| | | |
|---|---|---|
| **17** | **Front angles** | **no. 18 and 19 page**Erreur ! Signet non défini.**, 121 or 124** |

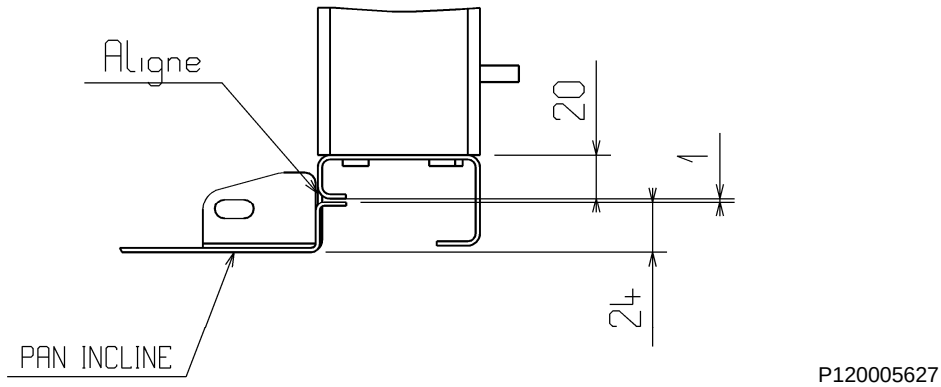
- Snap the angle onto plinth no. 14 and band no.17, then attach the angle to the bakelite insulating washers.
- Attach the angle to the stainless steel post of the door frame with 3.9x10 sheet metal screws.

IMPORTANT: Prior to attaching the angle that holds the control panel:

- Connect the light connector
- Assemble the sensor onto the door frame (adjust to 2mm from the door). For left-hand control panel, use the 2 extensions supplied.
- Insulate the angles with ROCK WOOL (except those with front heat-insulating sheet) (no.9).
- Attach the top bands with M6x16 collar nuts.

| | | |
|---|---|---|
| **18** | **Inclined pan** | **no.20 page** Erreur ! Signet non défini.**, 121 or 124** |

- Attach to the door frame with HM8x20 stainless steel screws, D.8 tooth lockwasher and Wolfrakot grease.
- Make sure the moving pan does not hit the painted external frame (wedge under the screw if necessary with the washer supplied with it. Check the alignment with the cross member (make it reach the member).

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- The inclined pan MUST be fixed to the floor with plastic pins and wood screws.



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| | | |
|---|---|---|
| **19** | **Intake shutters for electric ovens** | **Page 127** |

- Install the pan (6) on the bottom of the unit (5)
- Attach the intake sheet (1) to the walls (4) with HM 6x16 brass screws (C), M6 stainless steel tooth lockwashers (D).
- Install the intake shutters (3) in the pan (6) and attach them to the walls (4) with HM 6x16 brass screws (C), M6 stainless steel tooth lockwashers (D).
- Attach the intake shutters (3) to the intake sheet with HM 6x16 brass screws (C), M6 stainless steel tooth lockwashers (D), HM6 stainless steel nuts.

CHECK THE WIDTH OF AIR PASSAGES: 30MM.

| | | |
|---|---|---|
| **20** | **Intake shutters for Oil/Gas ovens** | **Page 128 .** |

- Attach the intake sheet (2) to the pan (7) with HM6 x 16 brass screws (C); 6 x 14 flat washer (B); M6 stainless steel nut (A)
- Attach the intake sheet (2) to the top part of the heating unit (1) with 2 HM6 x 16 screws (C); 2 6 x 14 flat washers (B)
- Attach the 2 side pans (5) and (6) and intake shutters (3) and (4) with HM6 x 16 brass screws (C); 6 x 14 flat washer (B); M6 stainless steel nut (A).
- Attach shutters (3) and (4) to the intake sheet (2) and the posts with HM6 x 16 brass screws (C); 6 x 14 flat washer (B)

**CHECK THE WIDTH OF AIR PASSAGES: 30 MM.**

| | | |
|---|---|---|
| **21** | **Steam generators** | **Page 131,132.** |

- Attach the generators (no. 3) in the keyholes starting from the bottom.
- Attach the water supply elements (stainless steel pipes no. 2) to the central tee (no. 1), ensuring that the branch connections are directed to the steam generators.
- For electric ovens install the 4 baffles on the lower rear pin (free) of the 4 top and middle steam generators, checking that the water can flow down to the bottom generator.

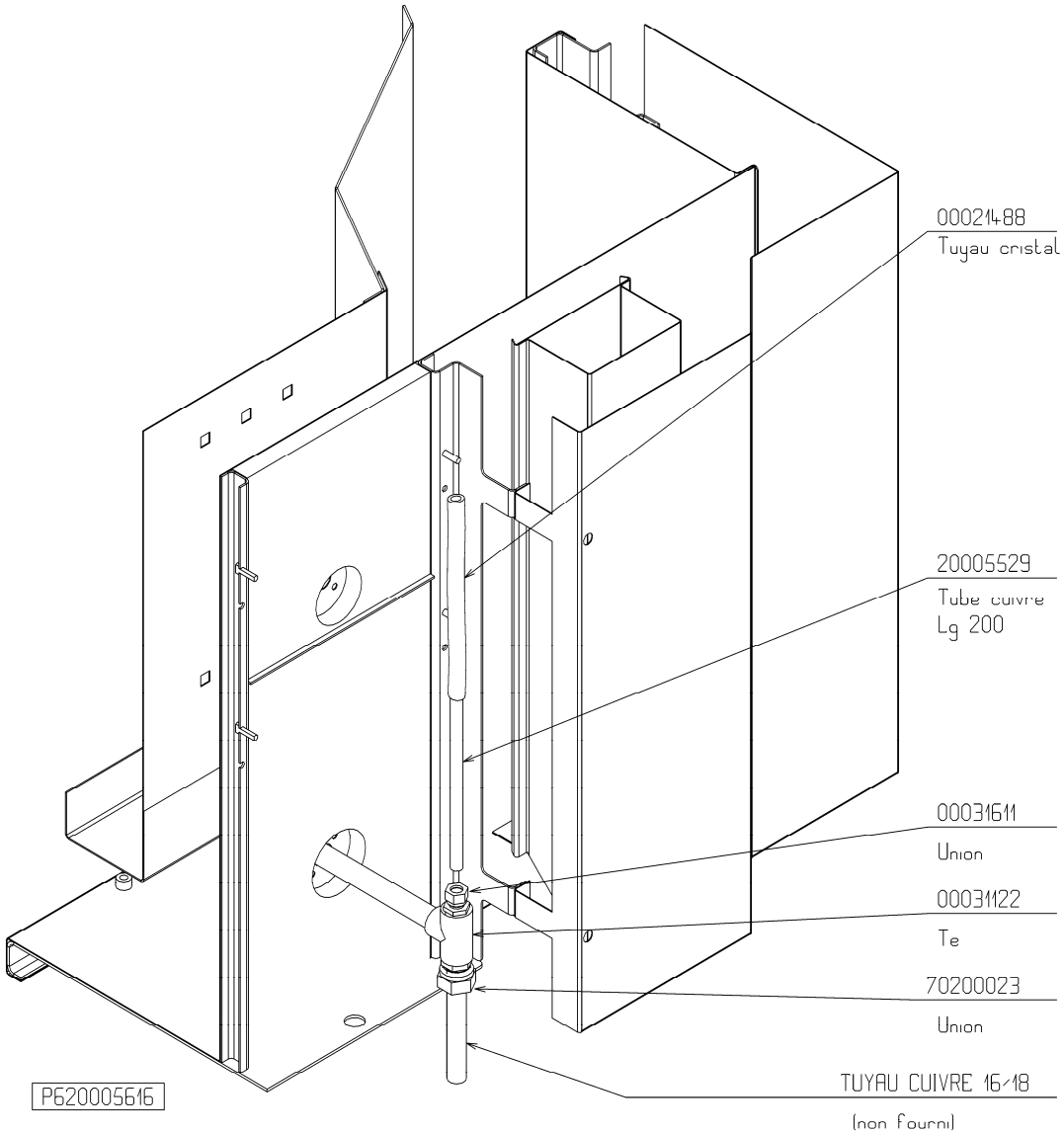
| 22 | Steam connections | |
|---|---|---|

With flexalu sheath and clamps: seal with silicone putty

- **Door post intake:**
  directly from the left side of the roof
- **Door lintel intake:**
  by passing the roof on the right

| 23 | Condensate discharge | |
|---|---|---|

- Connect the intake box exhausts and steam generators as shown below.



| | | |
|---|---|---|
| **24** | **Burner** | **Page 129** |

Oil/gas ovens only:

- Attach the burner to its mount (no 5) sandwiching the 10 mm thick seal (No. 6) and the seal supplied with the burner. Connect the elements - see section 3.2 or 3.8.

| | | |
|---|---|---|
| **25** | **Electrical connections** | **Page 133, 134** |

All connectors are fitted with polarizing slots.

**ELECTRIC OVEN**

– Connect the 3 fan motors (A / B and C) to the main electrical cabinet.
  - The servomotor of the damper actuator (D).
  - The steam exhaust fan motor (E).
  - The 16-pin connector (G) of the front panel.
  - The 16-pin connectors (H) and (I) of the resistor units.

– Connect the 16-pin connector (F) to the roof distribution box.

– Install and attach with silicone putty - see § 26
  - The overheat safety thermostat (J) bulb in the heating unit thermometer pocket (push right in).
  - The temperature regulator thermocouple (K) in the heating unit thermometer pocket (push right in).

**IMPORTANT: run the grey cables (19 conductors) through the top side bands so that they do not come in contact with hot oven parts.**

– Connect the mains to the main electrical cabinet circuit breaker.

- Connect to the main electrical cabinet:
  - The 3 fan motors (A / B and C).
  - The servomotor of the damper actuator (D).
  - The steam exhaust fan motor (E).

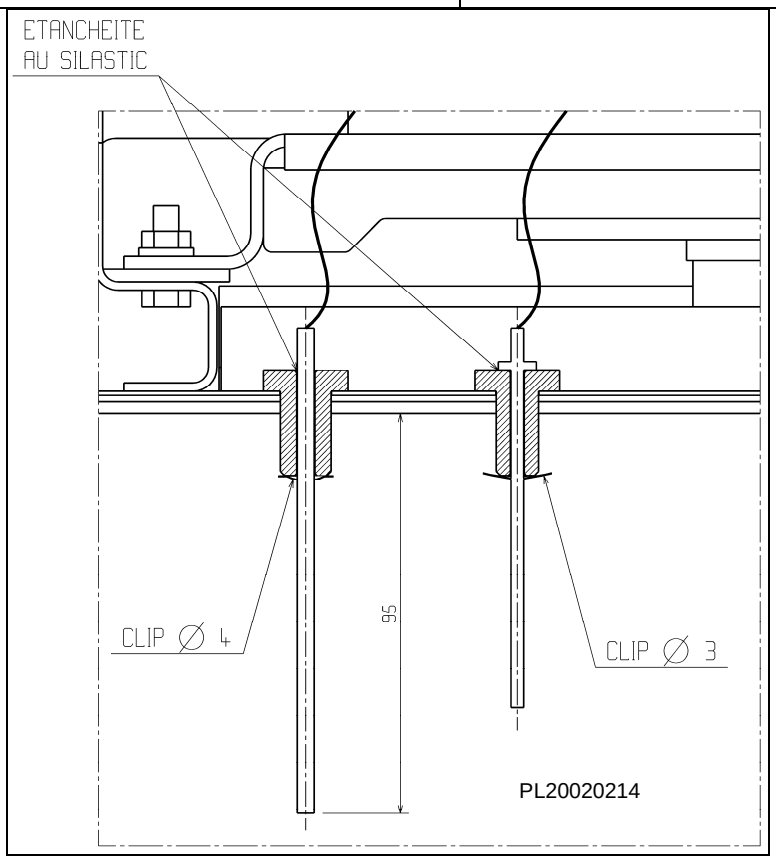
- Connect the 16-pin connector (F) to the roof distribution box.
- Connect the 6-pin plug to the burner (H).
- Install and attach with silicone putty: see § 26
  - The overheat safety thermostat (J) bulb in the heating unit thermometer pocket (push right in).
  - The temperature regulator thermocouple (K) in the heating unit thermometer pocket (push right in).

- Install the smoke safety thermostat bulb on the mount.

**IMPORTANT: run the grey cables (19 conductors) must through the top side bands so that they do not come in contact with hot oven parts.**

- Connect the mains to the main electrical cabinet circuit breaker.
- Insert the mount into the tube (flower bulb) and tighten the M4 screw to block it.

| | | |
|---|---|---|
| 26 | Sensors assembly | |



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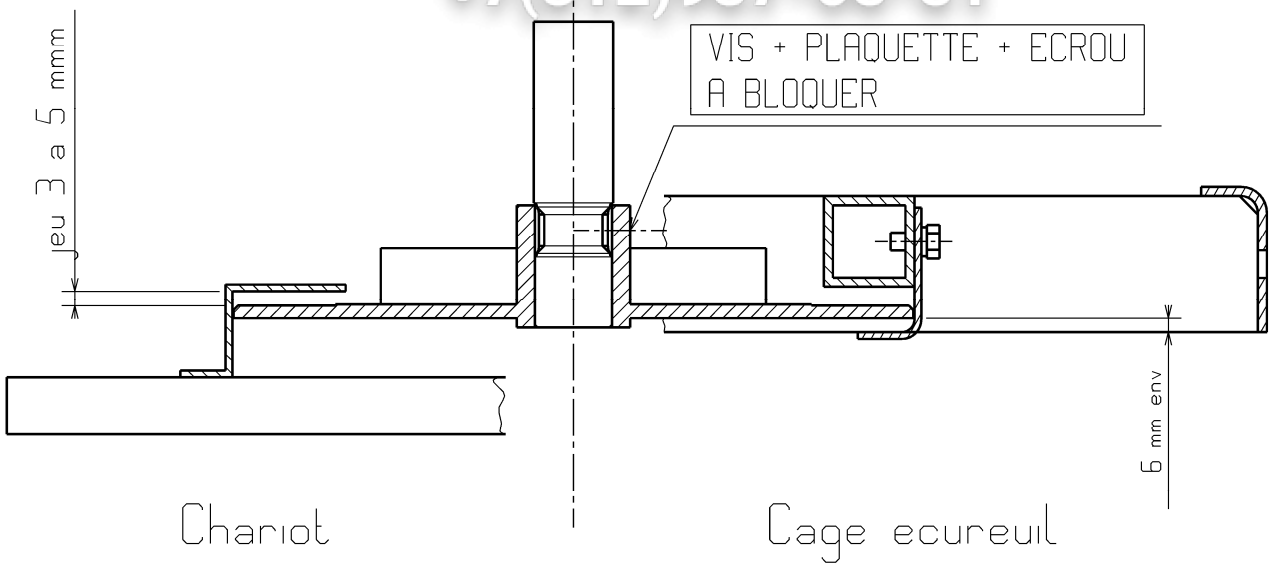
# 11. ADJUSTMENTS

| | |
|---|---|
| 1 | **Rack drive disc** |



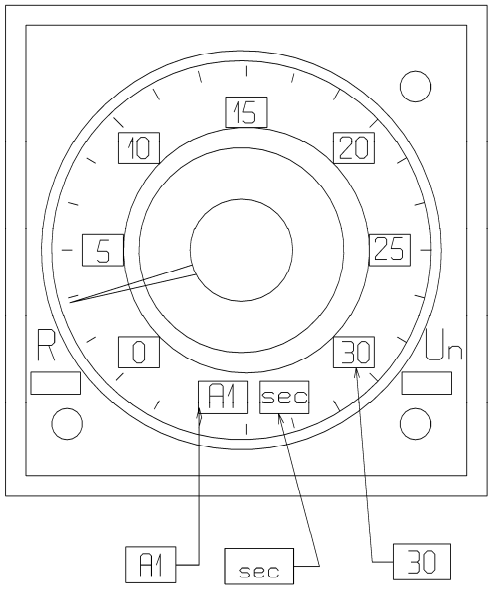

| | | |
|---|---|---|
| 2 | **Time delays** | |

R6 Time delay for steam injection time

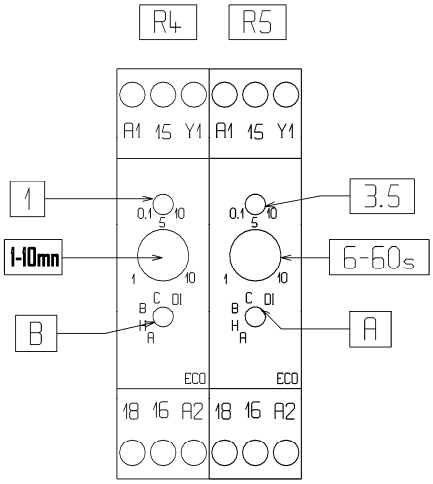
R4 Time delay for stopping the fan impellers after steam injection

R5 Time delay for steam extraction when the door opens

**OVEN FRONT**




**ELECTRICAL CABINET BACK**




PI20020206

# 12. STARTING THE OVEN

## 12.1. MOTOR DIRECTION OF ROTATION

**PRELIMINARY OPERATIONS:**

- **CHECK the direction of rotation of impellers (anti-clockwise inside the oven) by pressing an impeller motor contactor KM6.**
- **If necessary, reverse 2 phases on the MAINS SUPPLY of the disconnection switch.**
- **Then press the KM4 contactor once to check that the direction is UP.**
- Set the switch to the ON position on the oven's main electrical cabinet. (Position 0: oven off Position 1: oven on)
- Close the oven door.
- Set the timer to ‘bake’ mode.
- Set the temperature regulator to the required temperature.
- Press the ON button 1, the indicator lights up (steam generator off)
- The oven is pre-heating.

## 12.2. ADJUST THE DOOR UNLOCKING CABLE

Yoke in the low position (rack down)

Cable end with 15 mm clearance

## 12.3. CHECK THE DIRECTION OF THE DAMPER

Check the open and closed positions are not inverted (damper closed with vertical pins).

If necessary, invert the position by turning the arrow 0-1 on the damper motor.

## 12.4. INSTALL THE CLADDING

Rear panel: no. 22 page **Erreur ! Signet non défini.**, 121 or 124

Attach the side panels and cross members with CBHC M6x12 stainless steel screws

Also place a screw on each visible bushing.

**Top belt: no. 24 page** Erreur ! Signet non défini.**, 121 or 124**

Attach with HM6x20 stainless steel screws and M6 collar nut.

# 13. CHANGES FOR INSTALLING THE SQUIRREL CAGE

**On a standard oven**

Change the standard roof (sheet 1)

*a - Disconnect pinion no.2 from shaft no.1*

- 3 screws - 3 nuts - 3 safety washers

- Move it from A to B, raising the shaft inside the baking chamber by approx. 70 mm (sheet 2)
- lock the 3 screws in the 3 flat collar nuts + nuts + washers

*b – Dismantle ball thrust bearing no.3*

- Assemble the spacer ring onto the yoke (CHECK THE DIRECTION)
- Reassemble the ball thrust bearing in reverse order.

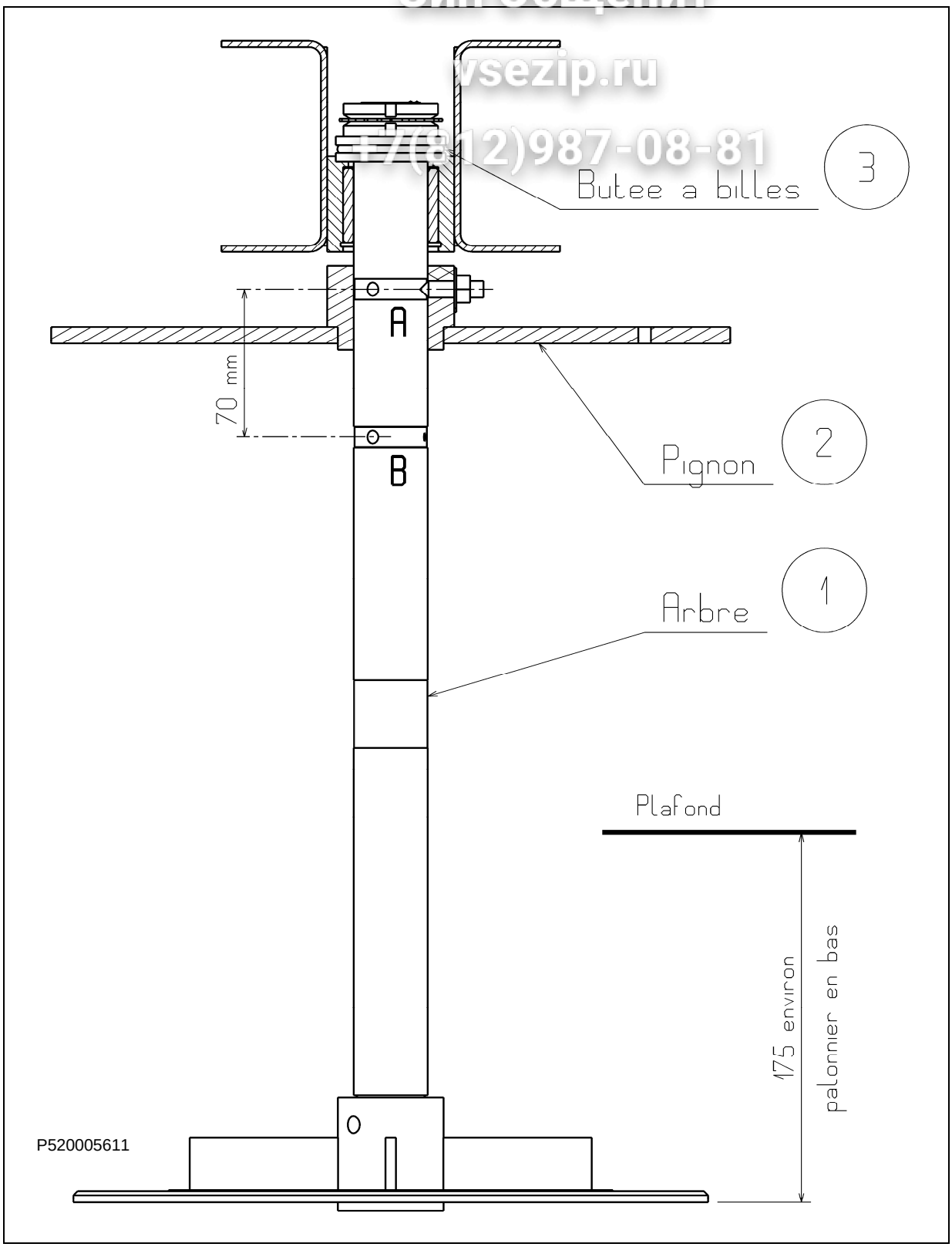
Modify the standard bottom

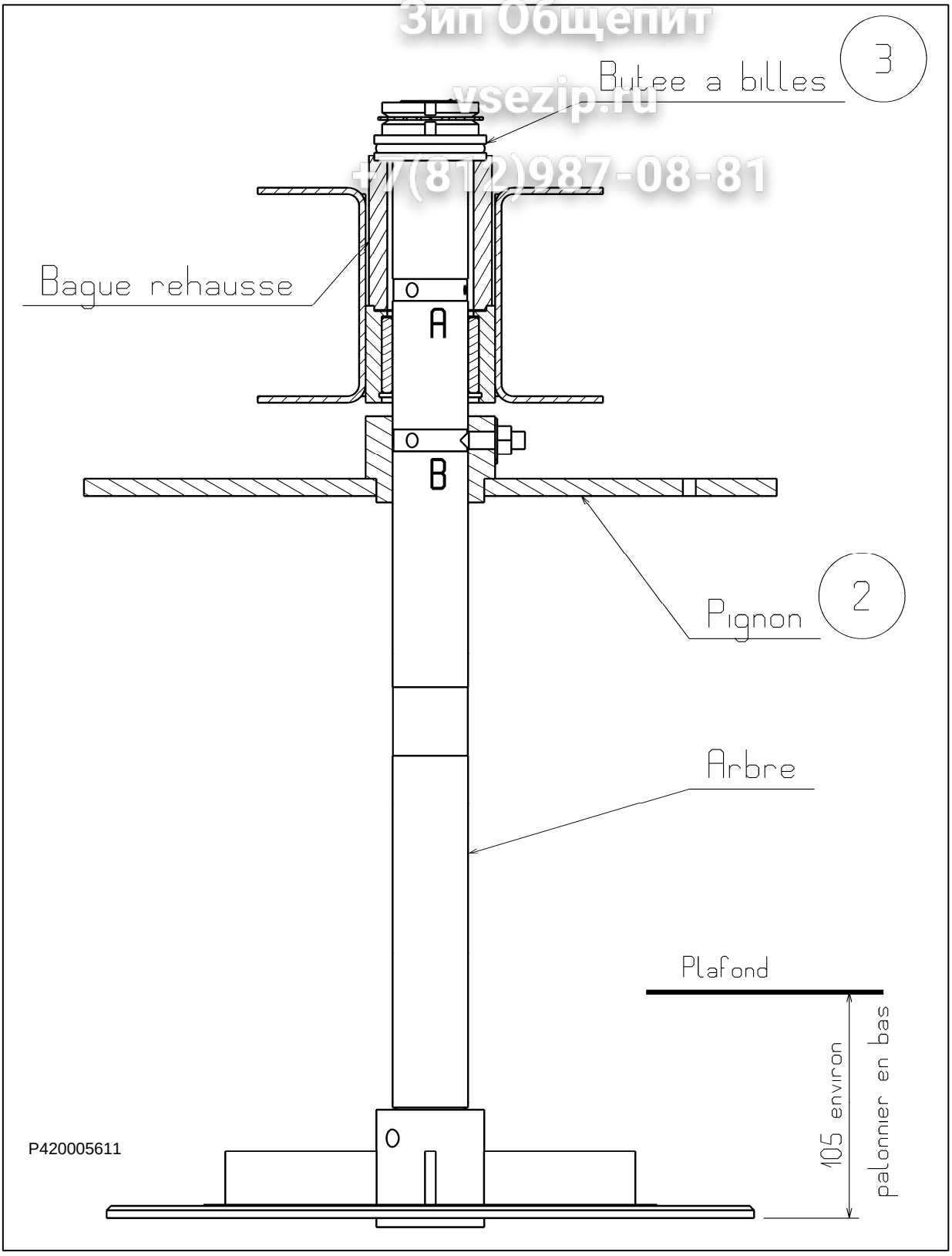
- Attach the locating pin to the bottom with the HM10x80 screw
- Grease the screw and the pin using HT BARRIERTA grease

Assemble the squirrel cage

- Adjust the drive disc height

- Don't forget to tighten the screw and block it with the safety washer + nut.





# 14. CHANGES TO SETUP

– **Electric ovens** are versatile, the heating unit can be installed equally at the back left or right without having to change the components.

– **Oil/Gas ovens** are different for each setup:

  ▪ rear heating unit (standard)

  ▪ left heating unit

  ▪ right heating unit

– Adaptation kits allow for changing a rear heating unit (standard).

  **a.** left heating unit

  **b.** right heating unit.

  In this case, it is necessary to remove the control panel from the front right angle to reassemble it onto the new left angle. Use the extension cables supplied to connect the detector and the door light.

DEALER’S STAMP

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