

1. PREFACE	38
1.1 INTRODUCTION	38
1.2 IMPORTANT	38
1.3 PRESERVATION	38
2. GENERAL INFORMATION	39
2.1 MANUFACTURER'S IDENTIFICATION	39
2.2 APPLIANCE IDENTIFICATION	39
2.3 TECHNICAL SERVICE	39
2.4 GENERAL SAFETY REGULATIONS	40
3. PRELIMINARY INFORMATION	42
3.1 TECHNICAL DATA	42
3.2 FIELD OF USE	44
4. HANDLING AND UNPACKING	44
4.1 GENERAL WARNINGS	44
4.2 UNPACKING	44
4.3 HANDLING AND STORAGE	44
5. INSTALLATION	44
5.1 APPLIANCE DESCRIPTION	44
5.2 SUPPLY VOLTAGE	46
5.3 GENERAL REGULATIONS FOR USE	47
5.4 CONTROL PANEL	49
5.5 DEFINITONS OF FUNCTIONS	50
6. USING THE APPLIANCE	52
6.1 PREPARATION	52
6.2 OPERATION	53
7. MAINTENANCE	62
7.1 GENERAL WARNINGS	62
7.2 SCHEDULED MAINTENANCE	62
7.3 CLEANING AND MAINTENANCE OF VACUUM CHAMBER PACKAGING MACHINES	62
7.4 ROUTINE MAINTENANCE	64
7.5 TROUBLESHOOTING	68
8. DISPOSAL OF THE MACHINE AND ITS PARTS	69
8.1 DISPOSAL OF PNEUMATIC SPRINGS	69
9. SPARE PARTS- GENERAL WARNINGS	69
10. FROM THE MANUFACTURER	69
11. SPARE PARTS	172

1. PREFACE

1.1 INTRODUCTION

This document has been prepared and checked carefully to provide reliable information;
The manufacturer declines all responsibility, whether implicit or explicit, for eventual errors and omissions.

The descriptions and images in this Manual are not binding; the Manufacturer reserves the right to modify the documentation and technical features of the appliance at any moment and without any prior notice.

1.2 IMPORTANT

This document, prepared by ORVED S.r.l. , provides all the information necessary for use, preservation and disposal of the appliance.

In case of doubt, contact:

ORVED Srl Soc. Unipersonale - Via dell'Artigianato, 30 - 30024 MUSILE DI PIAVE (VE) ITALY
Tel.: ++39 0421 54387 / Telefax: ++39 0421 333100
for technical problems and assistance: Tel. e fax:++39 0421 337154
for orders: Tel.++39 0421 340340 fax:++39 0421 332295
E-mail: orved.ve@tin.it - Internet: www.orved.it

This document forms an integral part of the appliance and as such must be preserved throughout its life and use; if the appliance is passed on to third parties, this document must also be handed over to the new owner.

 **Read this Manual entirely before carrying out any operation on the appliance.**

ORVED will provide all the clarification necessary for use, maintenance and preservation of your Appliance.

 **The Buyer must make sure the operators concerned with use and maintenance of this appliance read this Manual entirely; it must always be readily available for consultation.**

It is the Buyer's responsibility to make sure, all amendments, updates or technical modifications communicated by the manufacturer are incorporated into the Manual.

 **Follow all the recommendations and directives given in this Manual because safe operation and preservation of the appliance depend on the correct use and application of the suggestions given below.**

The manufacturer declines all responsibility for damage to persons, objects and animals deriving from failure to observe the recommendations given in this Manual, the safety warnings, and modifications made on the appliance without authorization, tampering with the appliance and the use of non original spare parts.

1.3 PRESERVATION

This document must be used without damaging the contents.

Do not remove, tear or rewrite any parts of the Manual; while consulting it, do not use, greasy or dirty hands to turn the pages to avoid affecting the quality and life of the Manual.

After use, put the Manual back in a safe protected place easily accessible to operators involved in appliance use and maintenance.

If the Manual is lost or stolen or damaged, request a copy by sending a copy of the purchase order to ORVED, specifying the version, edition, revision and the name of the appliance. This information is indicated on every page of the document.

Date of publication of this Use and Maintenance Manual: 01.05.2005.
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Unauthorized use is forbidden.

The manufacturer reserves the right to make technical modifications at any moment without prior notice.

2. GENERAL INFORMATION

2.1 MANUFACTURER'S IDENTIFICATION

Head Office:

ORVED Srl Soc. Unipersonale - Via dell'Artigianato, 30 - 30024 MUSILE DI PIAVE (VE) ITALY

Tel.: ++39 0421 54387 / Telefax: ++39 0421 333100

E-mail: orved.ve@tin.it - Internet: www.orved.it

2.2 APPLIANCE IDENTIFICATION

The appliance is identified by means of a rating plate (see image) applied on the back, which bears the following information:

General data:

- Manufacturer's Name and Address:
Orved Srl - Via Dell'Artigianato, 30 - 30024 MUSILE DI PIAVE (VE)
- Model and CE marking

Technical features:

- Rated voltage, frequency and power



WARNING: It is absolutely forbidden to tamper with, engrave, alter, or remove the nameplate from the appliance. Do not cover it with adhesive tape or other such material as it must always be clearly visible.

WARNING: If the nameplate is found to be damaged for any reason whatsoever, (detached from the machine, damaged or only partly legible) notify the manufacturer immediately.

2.3 TECHNICAL SERVICE

2.3.1 WARRANTY

All ORVED products are normally subjected to severe quality and functional checks before installation to ensure safety and in the interests of our Clients.

2.3.1.1 COVER

All ORVED products are covered by a warranty for manufacturing and machining defects, and we undertake to replace parts found to be defective by the manufacturer free of charge.

2.3.1.2 DURATION

ORVED products come with a twelve-month warranty from the date indicated on the purchase document.

2.3.1.3 GENERAL CONDITIONS

According to the ORVED warranty:

- The warranty gives exclusive rights for free replacement of components acknowledged as defective by ORVED or our authorized representative.
- ORVED's responsibility is limited exclusively to replacing parts found to be defective; we shall not acknowledge claims for any other kind of damage.
- The Client is entirely responsible for returning disputed and/or defective parts to the ORVED office, and all transport charges for delivering the parts.
- Parts subject to normal wear are excluded from the warranty.
- Repairs, if any, do not in any manner lead to extension of the warranty.

2.3.1.4 TERMINATION

Apart from the normal validity period, the warranty will immediately lapse in the following cases:

- Appliance nameplate tampered with, altered in any manner or removed without informing the manufacturer immediately.
- Modifications on the appliance or its parts without written authorization from the manufacturer. Tampering with the appliance or its parts, apart from invalidating the warranty, will free ORVED of all liability for all damage to persons, animals or objects.
- Failure to respect the indications in this Manual.
- Using the appliance for purpose other than that specified in this Manual.
- Damage or accident to the appliance deriving from outside factors.
- Conduction, repair and/or maintenance operations carried out by untrained personnel.

2.3.2 NOTIFYING DEFECTS OR FAULTS

WARNING: Defects and faults must be notified to the area dealer or directly to the manufacturer.

2.3.3 ORDERING SPARE PARTS

WARNING: Spare parts must be ordered from the area dealer or directly from the manufacturer, indicating the article code (See SPARE PARTS Chapter).

2.4 GENERAL SAFETY REGULATIONS

ORVED has analyzed the fundamental operations regarding use and maintenance for the design and construction of the appliance; the operating methods are studied and described in this Manual to allow safe operation.

! *ATTENTION: Failure to observe these regulations can be extremely hazardous for safety of the appliance and persons.*

2.4.1 SYMBOLS

Symbols and texts in different styles have been used in this Manual to highlight certain situations involving risk for the appliance or operator safety, particularly important regulations, recommendations, warnings and precautions to be taken during use and Maintenance. The personnel involved in the use and maintenance of the appliance must understand these symbols before carrying out any operation on it.

SYMBOL	SIGNAL	MEANING
	ELECTRIC HAZARD!	Indicates immediate danger for the person's life and health. Failure to observe these warnings may lead to serious damage to health, or even mortal injury.
	DANGER!	Indicates probable danger for the person's life and health. Failure to observe these warnings may lead to serious damage to health or even mortal injury.
	ATTENTION!	Indicates possible danger . Failure to observe these warnings may lead to minor wounds and material damage.
	WARNING!	Indicates a possible damage situation . Failure to observe these warnings may lead to material and environmental damage.
	IMPORTANT!	Indicates recommendations for use and other useful information .
	INFORMATION SERVICE	The presence of this symbol alongside the text implies the obligation to inform the manufacturer of a particular situation or the possibility of requesting information regarding a certain topic.
	RISK OF BURNS	Indicates immediate danger in case of contact with very hot surfaces.

2.4.2 WARNINGS AND HAZARDS DERIVING FROM USE OF THE MACHINE

2.4.2.1 HAZARDS DERIVING FROM USE OF THE MACHINE

! *DANGER! The machines are designed and constructed according to the latest technology available and conform to applicable safety standards. In spite of this, they may be a source of hazard, especially if the safety instructions given in this Manual are not observed. Immediately eliminate all faults and problems that can affect safety!*

2.4.2.2 MACHINE OPERATORS

! *DANGER! The machine must be used only by trained operators. Such operators must be familiar with the safety standards and operating instructions given in this Manual.*

2.4.2.3 PROTECTIVE AND SAFETY DEVICES

! *DANGER! Before starting up the machine, check to ensure that all the safety and protective devices are present and in perfect working order.*

2.4.2.4 ELECTRIC HAZARDS

! **ELECTRIC HAZARD!**

- Only qualified personnel are permitted to work on the electric system and access live parts of the machine.
- Check the machine's electric system regularly.
- Remove and/or replace slackened connections or burnt wires immediately (replacement must be done exclusively by qualified personnel).
- Use only plugs and sockets suitable for the electrical features shown on the machine's nameplate.
- Do not insert objects in the machine's air vents: danger of electric shock!
- Do not use running water, water jets and/or steam in the machine installation area: danger of electric shock!

2.4.2.5 MACHINE MAINTENANCE, SERVICING AND REPAIR

! **DANGER!**

- Remove the plug from the power socket before carrying out any operation.
- Carry out all machine maintenance and servicing operations punctually.
- Damage, if any, must be repaired exclusively by qualified personnel.

GB

2.4.2.6 MODIFYING THE APPLIANCE



DANGER!

- Do not make any modifications or changes on the machine without the manufacturer's permission.
- Replace all deteriorated, worn or damaged parts immediately (replacement must be done by a qualified technician).
- Use only genuine spare parts.

2.4.2.7 FIRE PREVENTION



DANGER!

- Keep the air vents clear (distance from surrounding parts at least 10 cm).
- Do not place the machine near inflammable products.



DANGER! Danger of burns: if alcohol-based or inflammable products are used for disinfecting, air the area. Do not use naked flames near the machine! Do not smoke!

2.4.2.8 CLEANING AND DISMANTLING THE MACHINE



ATTENTION!

- Clean the machine regularly by following the instructions given in this Manual.
- Use and handle cleaning products according to the manufacturer's instructions.
- Scrapping and disposal of the machine, parts and products used for cleaning the machine must be done strictly in compliance with the applicable standards.



2.4.2.9 HAZARDS DERIVING FROM PNEUMATIC SPRINGS APPLIED ON THE PLEXIGLAS COVER



DANGER!

- Never open the pneumatic springs, as the pressure inside them is extremely high (about 180 bar).
- Before scrapping the machine, discharge the pneumatic springs. Request instructions for disposal.

2.4.2.10 HAZARDS DERIVING FROM USE OF GAS IN MACHINES WITH GAS OPTION



DANGER!

- Use only nitrogen N_2 or carbondioxide CO_2 or nitrogen+carbondioxide mixture N_2-CO_2 .
- Detonation hazard! Do not use oxygen O_2 or other explosive or inflammable gases.
- Observe the gas producer's instructions strictly for correct use of gas cylinders and gas pressure reducers!

3. PRELIMINARY INFORMATION

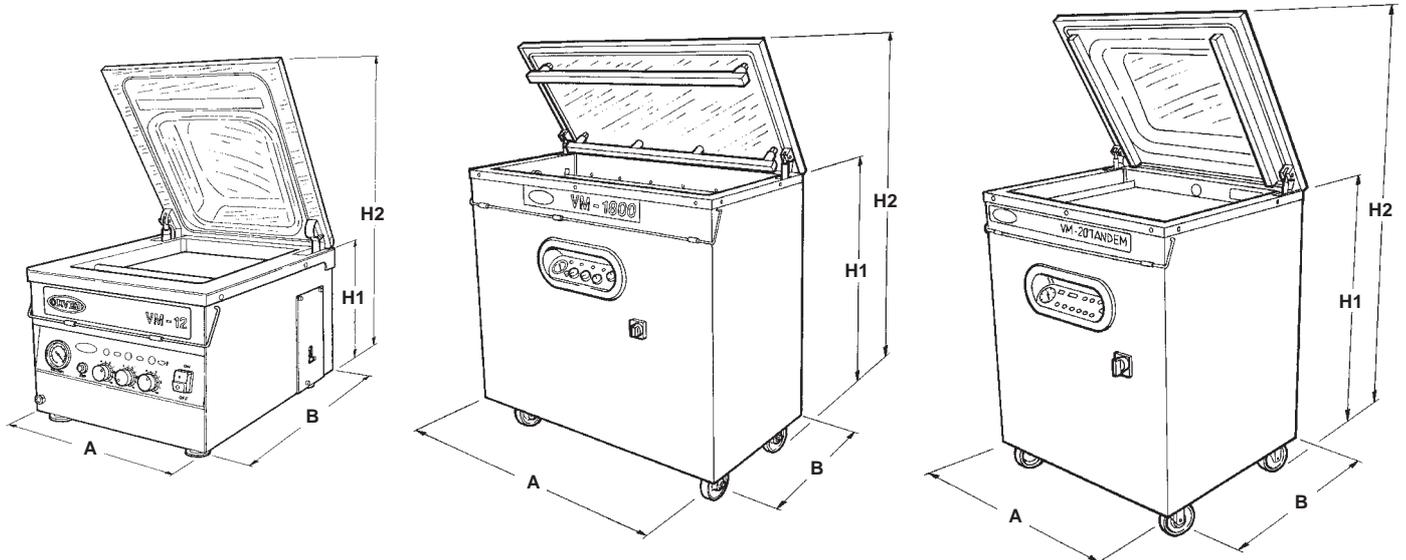
3.1 TECHNICAL DATA

DATI TECNICI - TECHNICAL DATA - DONNÉES TECHNIQUES - TECHNISCHE DATEN - DATOS TÉCNICOS		MODELLI																		
		MULTIPLE 315 P4	MULTIPLE 315 P8	MULTIPLE 315H P8	VM12	VM10	VM16	VM40N	VM18	VM18H	VM53	VM53H	VM20	VM20 TANDEM	VM19	VM1800	VM30			
PESO WEIGHT POIDS GEWICHT PESO	KG	32,0	32,0	36,0	36,0	50,5	51,0	76,0	80,0	95,0	96,0	116,0	167,0	280 (60mc/h) 305 (100mc/h)	181,0	180,0	250,0			
DIMENSIONI DIMENSIONS DIMENSIONS ABMESSUNGEN DIMENSIONES	A mm	440	440	440	385	440	440	555	545	545	600	600	765	1510	985	998	1100			
	B mm	440	440	440	520	530	530	620	580	580	700	700	700	700	535	610	800			
	H1 mm	325	325	370	370	380	430	455	510	1010	500	1035	1050	1050	980	1056	1070			
	H2 mm (a)	595	595	595	640	720	720	820	850	1340	920	1500	1470	1470	1335	1375	1520			
TENSIONE DI ALIMENTAZIONE ELECTRIC CONNECTION BRANCHEMENT ELECTRIQUE ELEKTRISCHER ANSCHLUSS ALIMENTACIÓN ELÉCTRICA	STANDARD Volt	220-240 V/1Ph+N+PE/50-60Hz										389-440 V/3Ph+PE/ 50-60Hz								
	SPECIALE SPECIAL SONDER. Volt	110-120 V/1Ph+N+PE/50-60Hz 110-115 V/1Ph+N+PE/60Hz										208-230 V/3Ph.+PE/60Hz 200 V/3Ph+PE/50-60Hz								
DIMENSIONI CAMERA A VUOTO CHAMBER SIZE DIMENSIONS DE CUVE KAMMERGRÖSSE TAMAÑO DE LA CÁMARA	A mm	330	330	330	270	330	330	435	435	435	485	485	650	650	870	870	980			
	B mm	335	335	335	400	432	432	500	435	435	550	550	535	535	385	435	585			
	H1mm (b)	80	80	80	100	100	100	110	140 (d)	140 (e)	110 (f)	110 (f)	130 (g)	130 (g)	190 (h)	130 (i)	130 (j)			
	H2mm (c)	/	/	60	60	/	65	70	70	0/70	65	65	70	70	/	0/70	100			
	TOTAL mm	80	80	140	160	100	165	180	210	140/210	175	175	200	200	190	130/200	230			
	SP./TH./EP./DI./ESP.mm	2,0										2,5						3,0		
COPECCHIO-LID COVERCLE DECKEL-CUBIERTA	P/B (k)	P	P	B	B	P	B	B	B	B/P	B	B	B/P	B	P	B/P	B			
LUNGHEZZA BARRE SALDANTI (mm) LENGTH OF SEAL LONSUEDADE SOUDURE SCHWEISSLÄNGE LARGO DE SOLDADURA	1 B STD (l)	310	310	310	250	310	310	415	415	415	460	460	610	610	845	845	945			
	2 B STD	/	/	/	2x250	2x 310	2x 310	2x 415	2x 415	2x 415	2x460	2x460	2x 610	2x 610	2x 845	2x 845	2x 945			
	2 BL	/	/	/	/	/	/	/	/	/	2x 520	2x 520	2x 610	2x 610	2x 845	2x 845	2x 945			
	2 BC	/	/	/	/	/	/	/	/	/	2x 460	2x 460	2x 505	2x 505	2x 415	2x 415	2x 545			
	BL	/	/	/	/	/	/	/	/	/	/	/	/	/	745+350	800+415	900+510			
	BQ	/	/	/	/	/	/	2x350+2x405	2X340 + 2X350	2X340 + 2X350	/	/	/	/	/	/	/			
DIMENSIONI MASSIMA BUSTA MAXIMUM BAG SIZE DIMENSION MAXIMALE DE SACHETS MAXIMALE BEUTELGRÖSSE DIMENSION MAXIMA DE BOLSA	mm	300x350			250x450	300x450	300x450	400x550	400x450	400x450	VARIABILE IN BASE AL NUMERO ED ALLA LUNGHEZZA DELLE BARRE SALDANTI DIFFERS ACCORDING TO THE NUMBER AND LENGTH OF SEALING PADS VARIABLE SELON LE NUMÉRO ET LA LONSUEUR DES BARRES DE SOUDURE VON DER ANZAHL UND LÄNGE DER SCHWEISSLEISTEN ABHÄNGIG VARIA SEGÚN EL NÚMERO DE BARRAS SOLDADORAS									
	Nota : ESTRAZIONE ESTERNA IN BUSTE GOFFRATE Note: EXTERNAL EVACUATION WITH CHANNLED BAGS Note: ÉVACUATION EXTERNE AVEC SACHETS GAUFFRÉS Hinweis : EXTERNES VAKUUMIEREN MIT GEPRÄGTEN BEUTEL MOGLICH Nota: EVACUACIÓN EXTERNA CON BOLSAS GOFRADAS																			
PORTATA NOMINALE POMPA NOMINAL PUMP SPEED DÉBIT NOMINAL POMPE NENNSAUGVERMÖGEN PUMPE CAPACIDAD NOMINAL BOMBA	m ³ /h	4		8		12		18		25		25 / 60	60	60 / 100	60		100			
PRESSIONE FINALE FINAL PRESSURE PRESSION FINALE ENDRUCK PRESIÓN FINAL	Pa	200							50											
POTENZA POMPA PUMP POWER PUISSANCE POMPE PUMPLEISTUNG POTENCIA BOMBA	W (50Hz)	120	250	250	250	450			750		750 / 1500	1500	1500 / 2200	1500		2200				
	W (60Hz)	150	300	300		540			900		900 / 1800	1800	1800 / 2700	1800		2700				
POTENZA MASSIMA ASSORBITA MAXIMUM POWER ABSORPTION PUISSANCE MAXIMALE ABSORBÉ GESAMTLEISTUNG POTENCIA ABSORBIDA MÁXIMA	W	350	450	450	450-700	750	750	1000	1200	2200	1200	1200 / 3500	1500	3000	1500-3500	1500-3500	2200-3500			
FUSIBILI DI PROTEZIONE FUSES FUSIBLES DE PROTECTION SICHERUNGEN FUSIBLES DE PROTECCIÓN M= 220-240V T=400V 3PH.+PE	PF1 (A)	M	1,6	6,3			8			12			10			/	/	/	/	/
		T	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/		
	PF2 (A)	M	2,5	2,5	2,5	2,5-8			2,5-10			1			/	/	/	/		
		T	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/		
	PF3 (A)		1,0																	
PF4 (A)		4							4M / 5T							5				
PF5 (A) (n)		/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	4-12			

NOTE:
 (a) H2 = COVER OPEN
 (b) H1 = VACUUM CHAMBER
 (c) H2 = COVER
 (d) MAX. DEP. AT VACUUM CHAMBER CENTRE
 (e) STANDARD H=140mm / SPECIAL H=250mm / 400mm
 (f) STANDARD H=110mm / SPECIAL H=130mm / 200mm
 (g) STANDARD H=130mm / SPECIAL H=190mm / 280mm
 (h) STANDARD H=190mm / SPECIAL H=260mm / 490mm
 (i) STANDARD H=130mm / SPECIAL H=180mm / 300mm
 (j) STANDARD H=130mm / SPECIAL H=250mm / 320mm / 350mm

(k) P= FLAT - B = CONVEX
 (l) 1 B STD = 1 STANDARD SEALING BAR
 2 B STD = 2 STANDARD SEALING BARS
 2 BL = 2 LONG SEALING BARS
 2 BC = 2 SHORT SEALING BARS
 BL = 2 "L" SHAPED BARS
 BQ = SQUARE BAR
 (m) VARIABLE DEPENDING ON THE NUMBER AND LENGTH OF SEALING BARS
 (n) IN THREE-PHASE VERSIONS: 10.3x38 CYLINDRICAL CERAMIC SAFETY FUSE
 (p) 10 PROGRAMS

DATI TECNICI - TECHNICAL DATA - DONNÉES TECHNIQUES - TECHNISCHE DATEN - DATOS TÉCNICOS		MULTIPLE 315 P4	MULTIPLE 315 P8	MULTIPLE 315H P8	VM12	VM10	VM16	VM40N	VM18	VM18H	VM53	VM53H	VM20	VM20 TANDEM	VM19	VM1800	VM30	
TIPO OLIO POMPA PUMP OIL TYPE TYPE D'HUILE POMPE PUMPENÖLTYP TIPO DE ACEITE BOMBA	TIPO TYPE TYPE TYP TIPO	SW40							SW60			SW60 / SW100		SW100				
	CARICA (LT) CAPACITY CAPACITE FÜLLMENGE CARGA	0,06	0,20	0,20	0,20	0,28	0,28	0,30	1,20			1,20 / 1,50		1,50				
CONDIZIONI AMBIENTALI LUOGO D'IMPIEGO ENVIRONMENTAL OPERATING CONDITIONS CONDITIONS D'UTILISATION UMGEBUNGS- BEDINGUNGEN CONDICIONES AMBIENTALES	TEMP. °C	12-40																
	UMIDITA' HUMIDITY HUMIDITE FEUCHTIGKEIT HUMEDAD	10 - 80%																
RUMOROSITA' NOISE LEVEL BRUIT LÄRMERZEUGUNG NIVEL DE RUIDO	dB(A)	60							65			70	70/75	70	75			
FREQUENZA CAMBIO OLIO OIL CHANGE FREQUENCY INTERVALLE VIDANGE D'HUILE HÄUFIGKEIT ÖLWECHSEL FRECUENCIA CAMBIE EL ACEITE		DOPO 100 ORE DI FUNZIONAMENTO AFTER 100 OPERATING HOURS APRÈS 100 HEURES DE TRAVAIL NACH 100 BETRIEBSSTUNDEN LUEGO DE 100 HORAS DE OPERACION							DOPO 200 ORE DI FUNZIONAMENTO AFTER 200 OPERATING HOURS APRÈS 200 HEURES DE TRAVAIL NACH 200 BETRIEBSSTUNDEN LUEGO DE 200 HORAS DE OPERACION									
COMANDI STD. STD COMMANDS PILOTAGE STD.BEDIENUNG MANDO STD.		DIGITALE 10 PROGRAMMI / DIGITAL 10 PROGRAMS / DIGITAL 10 PROGRAMMES / DIGITAL 10 PROGRAMME / DIGITAL 10 PROG.							ELETTROMECCANICI / ELECTROMECHANICAL / ÉLECTROMÉCANIQUE / ELEKTROMECHANISCH / ELECTROMECÁNICO									
OPTI ON A L S	GAS/GAZ	DISPONIBILE / AVAILABLE / DISPONIBLE / ERHÄLTlich / DISPONIBLE																
	VASI/ JARS/ GEFÄSSV/ VASOS	STANDARD																
	SOFTAIR	DISPONIBILE / AVAILABLE / DISPONIBLE / ERHÄLTlich / DISPONIBLE																
	TAGLIO BUSTA CUT OFF SEAL COUPE DE SACS TRENN. CORTE DE BOLSAS	DISPONIBILE / AVAILABLE / DISPONIBLE / ERHÄLTlich / DISPONIBLE																
	DOPPIA RESIST. DOUBLE SEALING SOUDURE PARALL. DOPPEL- SCHW. SELLADO DE DOBLE COSTURA	DISPONIBILE / AVAILABLE / DISPONIBLE / ERHÄLTlich / DISPONIBLE																
	BARRE SOVRAPPOSTE UPPER SEALING PAD BARRE DE SOUDURE SUP. SCHWEISSL. OBEN/UNTEN BARRA SOLD. SUPERIOR	DISPONIBILE / AVAILABLE / DISPONIBLE / ERHÄLTlich / DISPONIBLE																
	COMANDI DIG. DIG.COMAND BOARD COMMANDES DIGITALES DIGITALE BEDIENUNG MANDO DIG. (p)	STANDARD							DISPONIBILE / AVAILABLE / DISPONIBLE / ERHÄLTlich / DISPONIBLE									
SENSORE SENSOR CAPTATEUR DE VIDE VAKUUM- UNTERDRUCK-FÜHLER SENSOR	DISPONIBILE NELLE VERSIONI CON COMANDI DIGITALI / AVAILABLE FOR MACHINES WITH DIGITAL COMMANDS / DISPONIBLE POUR MACHINES AVEC PILOTAGE DIGITAL / FÜR MASCHINEN MIT DIGITALER BEDIENUNG ERHÄLTlich / DISPONIBLE EN LOS MÓDELOS CON MANDO DIGITAL																	
UGELLI GAS GAS NOZZLES BUSES D'INJECTION GASDÜSEN PICOS DE GAS	1 B (k)	/	/	/	/	/	1	/	2	/	2	4	4 x2	6	6	6	/	
	2 B	/	/	/	/	/	1+1	/	2+2	/	2+2	4+4	4+4 x2	6+6	6+6	6+6	/	
	2 BL	/	/	/	/	/	/	/	/	/	3+3	4+4	4+4 x2	6+6	6+6	6+6	/	
	2 BC	/	/	/	/	/	/	/	/	/	2+2	3+3	3+3 x2	2+2	2+2	3+3	/	
	BL	/	/	/	/	/	/	/	/	/	/	/	/	4+2	4+2	4+3	/	
BQ	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	



3.2 FIELD OF USE

The Vacuum packaging machine is designed and constructed for creating vacuum in bags and rigid containers. The machine must not be used in other ways or for purposes other than that indicated by the manufacturer in this Manual. Conforming use of the machine also involves abiding by and understanding the warnings and notices in this instruction Manual, as well as prompt checking, maintenance and cleaning operations.

! **DANGER!** *The manufacturer declines all responsibility for damage to persons, animals and objects deriving from non conforming use of the machine.*

4. HANDLING AND UNPACKING

4.1 GENERAL WARNINGS

Pay attention to metal tips, nails, rivets, sharp edges and everything else that could be a potential source of risk on the packing. On receiving the machine, the Client must check to make sure it is intact, and inform the haulage contractor, or the transport personnel immediately of problems, missing parts or evident damage; this must be done before proceeding with other handling or unpacking operations.

☎ **WARNING:** *Damage, if any, on the packing may mean possible damage to the machine or its parts; in case of doubt regarding the actual condition of the machine following transport, contact the manufacturer for information, before carrying out any other operation.*

N **WARNING:** *The packed machine must be kept in a safe, dry place, covered and protected from environmental agents. The storage area temperature must be between 5°C and 40°C and the relative humidity not more than 80%.*

4.2 UNPACKING

After removing the packing, check to make sure the machine is intact; do not use it if in doubt and contact the dealer immediately. The packaging materials (plastic bags, etc.), must be kept out of the reach of children, and not dumped in the environment. Keep the packaging materials for future handling or storage of the machine.

N **WARNING:** *Disposal of the packing materials must be done in accordance with the Directives on the matter applicable in the country in which the machine is installed.*

4.3 HANDLING AND STORAGE

- In case of transport within the installation area, the machine must always be kept in the horizontal position to avoid oil leaks from the pump. The sealing bars and insertion plates must be fixed to prevent their shifting inside the vacuum chamber.

- In case of storage:

The machine must be stored in a safe place, suitable for the purpose, dry, ventilated, covered, and sheltered from atmospheric agents. The storage area temperature must be between 5°C and 40°C with a relative humidity value not higher than 80%. The installation area must be free of water and water vapour.

N **If a machine has remained unused for long periods, change the pump oil before re-using it, by following the instructions given in the "MAINTENANCE" chapter.**

5. INSTALLATION

5.1 APPLIANCE DESCRIPTION

VM Series vacuum packaging machines are meant for packing dry and/or cured products, thanks to the operating principle based on creation of vacuum inside a chamber (or tray), inside which the product in a special bag or rigid container is placed.

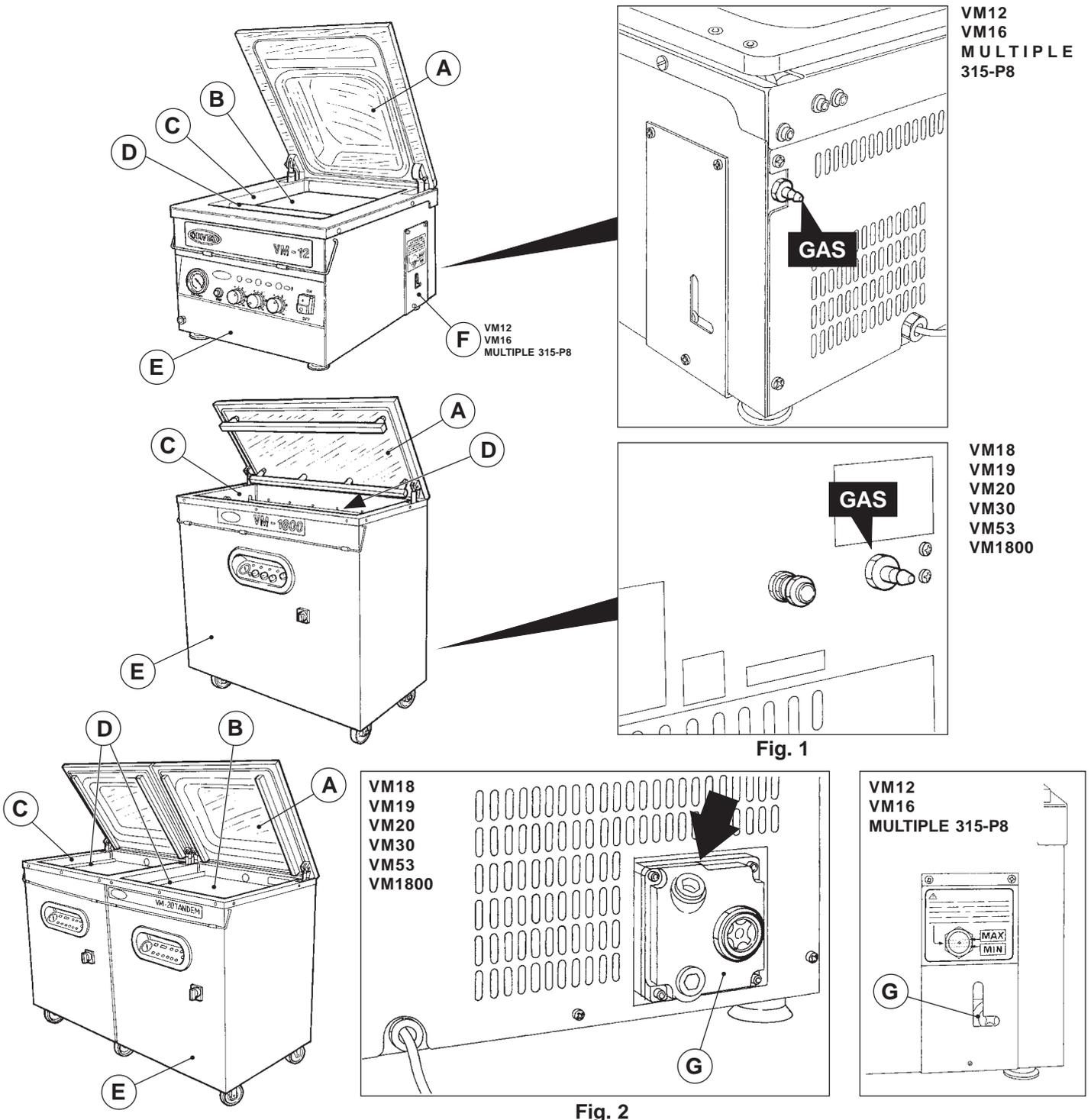
If provided with a special valve, the machine can also be used for vacuum-packaging of products in the above-mentioned rigid containers outside the chamber. As explained in detail in the "USING THE APPLIANCE" Chapter, some models can be used for creating a vacuum in special "channelled" bags outside the vacuum chamber, thereby making it possible to pack products larger than the vacuum chamber dimensions.

The work cycles (vacuum, bag sealing, devacuation and opening the cover) are carried out automatically in sequence.

In the versions with digital controls, the functions can be programmed for up to a maximum of 10 programs.

The machines basically consist of the following parts:

- a stainless steel chamber (vacuum chamber) (C) inside which vacuum is created and bags are sealed by means of sealing bars (D); it is fitted with a transparent plexiglas cover (A) that can be opened, and through which the operating phases can be observed. The depth inside the chamber may be changed using plastic insertion plates (B) supplied with the machine;
- a stainless steel casing (E) with the control panel and main switch located on the front, and the back is closed by a stainless steel panel. In models VM12, VM16 and MULTIPLE 315-P8, there is a side panel (F) for topping up the oil in the pump; in other models, the topping up is done from the back of the packaging machine (Fig. 2). The connection for the gas cylinder (option) is provided on the back (Fig. 1);
- a high-performance vacuum pump (G) lubricated in recirculation with glass window for checking the oil level;
- an air evacuation system consisting of unions, pipes and solenoid valves which connects the vacuum chamber to the pump and the system adjustment and/or control organs;
- an electrical system which includes the power board with fusebox, meters/thermal cutouts (in three-phase versions), control and connections board. All the functions are controlled by a microprocessor.



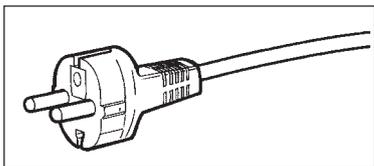
5.2 SUPPLY VOLTAGE

5.2.1 230V SINGLE-PHASE POWER SUPPLY

Models: MULTIPLE 315; VM12; VM16; VM18; VM18H; VM53; VM53H

The appliances are provided with a standard 2P+T-10/16A German plug for connection to the electricity mains. Insert the plug in a compatible power socket supplied by the mains.

ELECTRIC HAZARD! Before making the connection, always check to make sure the electrical features of the system in the installation area are suitable.

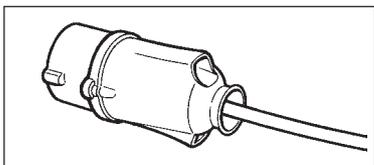


5.2.2 400V THREE-PHASE SUPPLY VOLTAGE

Models: VM18; VM18H; VM53; VM53H; VM19; VM20; VM20TANDEM; VM1800; VM30

The appliances are provided with a CEE 3P+T/16A plug for connection to the electricity mains. Insert the plug in a compatible power socket supplied by the mains.

ELECTRIC HAZARD! Before making the connection, always check to make sure the electrical features of the system in the installation area are suitable and check the direction of pump rotation.



5.2.3 CHECKING THE DIRECTION OF PUMP ROTATION IN 400V THREE-PHASE MACHINES

Procedure:

- a) Check to make sure the voltage indicated on the machine nameplate corresponds to that of your mains supply (Fig. 2).
- b) Insert the plug in the socket with the machine Off.
- c) Check the oil level in the pump through the glass window provided on it (Fig. 1).
If the level is insufficient, follow the instructions described in the "CHANGING THE PUMP OIL" Chapter.
- d) Adjust the "VAC" function on the control panel to a value between 3 and 5 (electromechanical versions), (Fig. 3A) 99% (digital versions with sensor) (Fig. 3B) or 20 seconds (timed digital versions) (Fig. 3C).
- e) Lift the plexiglas cover after lowering the lid holder.
- f) Switch the machine On by means of the main ON/OFF switch provided on the front of the machine.
- g) Lower the cover to close it: the machine starts up automatically. With the pump rotating in the correct direction, the cover will remain lowered to create vacuum (or an underpressure) inside the chamber; otherwise, the cover will rise again since air is blown in, not extracted from the chamber. In this case, switch Off the machine immediately and have a specialist technician invert the power supply phases.

Check the direction of pump rotation every time the three-phase socket is changed!

ELECTRIC HAZARD! Only specialist technicians must be allowed to invert the power supply phases.

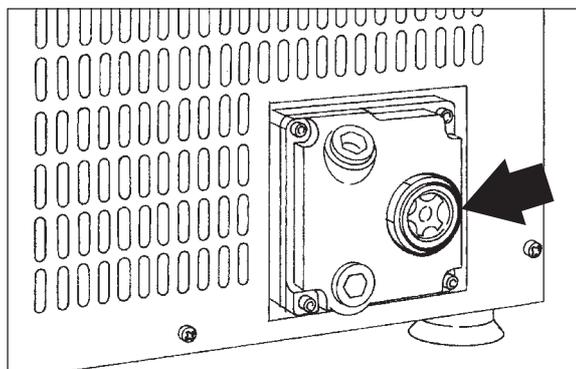


Fig. 1



Fig. 2

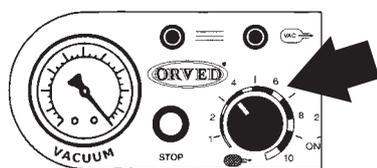


Fig. 3A



Fig. 3B



Fig. 3C

GB

5.3 GENERAL REGULATIONS FOR USE

ELECTRIC HAZARD! First check the voltage indicated on the nameplate to make sure it corresponds to that of your mains supply. **ELECTRICAL SAFETY OF THIS MACHINE IS ONLY ENSURED BY CONNECTING IT CORRECTLY TO AN EFFECTIVE EARTHING SYSTEM, AS ENVISAGED BY SAFETY STANDARDS. THE MANUFACTURER DECLINES ALL RESPONSIBILITY FOR DAMAGE CAUSED BY THE ABSENCE OF EARTHING OF THE ELECTRICAL SYSTEM.**

ELECTRIC HAZARD! Insert and disconnect the plug in the power socket always with the machine switched off; pull out the plug, not the cable.



Only qualified personnel are allowed to accede to powered parts.

WARNING! Position the machine on a solid, safe level horizontal work table. In carriage-mounted models, brake the two front wheels by lowering the front wheel pedals.

WARNING! The appliance must be positioned in such a manner as to allow access from all sides. This will also ensure necessary ventilation of the machine. In any case, there must be a clearance of at least 10 cm around the machine.

WARNING! If the machine includes the gas option, fix the cylinders to the wall. After using the machine, and after switching it off, also close the cylinder valve and pressure reducer valve.

DANGER! In appliances provided with the gas option, IT IS FORBIDDEN TO USE GAS MIXTURES CONTAINING OXYGEN OR OTHER EXPLOSIVE GASES OR FUELS. The gas mixture must be factory-set at the manufacturer's or adjusted by authorized personnel in the place where the machine is used. Gas cylinder supply and installation must be handled by the supplier's qualified personnel.

ATTENTION! If the vacuum and sealing time parameters of the work cycle are set at the maximum value, (at approx. 50 seconds of vacuum and 6 seconds of sealing), there must be an interval of at least 30 seconds between cycles.

ATTENTION! Stop the machine immediately if there is gas leakage caused by defective or rusty unions or damaged pipes.

Contact your nearest Service Centre for replacement of damaged parts.

WARNING! To avoid increase in oil density which could affect regular working of the pump, make sure that the environmental temperature never falls below 10°C.

WARNING! The pump oil must be checked every time the machine is used through the level glass provided on the side of the machine's rear panel (Fig. 4). The oil level must be between the MINIMUM and MAXIMUM level. The oil must be golden coloured and clear.

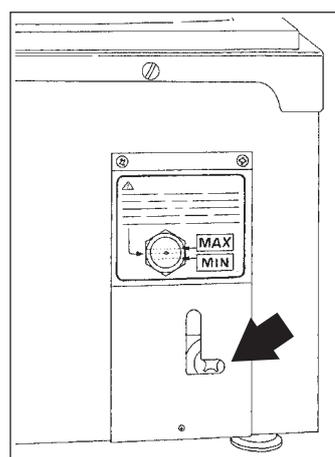
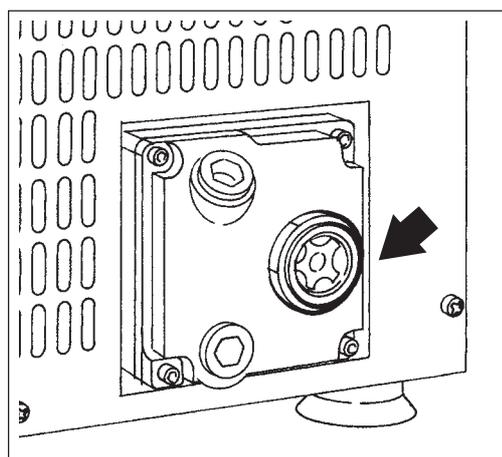


Fig. 4

WARNING! THE PUMP OIL MUST BE CHANGED PERIODICALLY; THE OIL CHANGE FREQUENCY MUST BE INCREASED PROPORTIONALLY TO THE WORKLOAD TO WHICH THE MACHINE IS SUBJECTED. THE OIL MUST BE CHANGED EVERY 15,000 OPERATING CYCLES (CORRESPONDING TO APPROX. 100 HOURS OF OPERATION) FOR MACHINES WITH 4, 8 AND 12 M³/H PUMPS, EVERY 25,000 CYCLES (CORRESPONDING TO APPROX. 200 HOURS OF OPERATION) FOR PUMPS WITH CAPACITY 18 A 100 M³/H. IT IS ALSO NECESSARY TO REPLACE THE EXHAUST FILTER (EVERY TWO OIL CHANGES) AND THE OIL FILTER (ONLY MODELS WITH 60 E 100 M³/H PUMPS- EVERY 1000 HOURS OF OPERATION) ON THE PUMP.

The oil and filter change frequency increases if liquids or wet products are handled; in such cases, the oil must be changed if the machine has remained unused for a month or a longer period. A whitish, cloudy or dark and transparent oil means suction of liquids and moisture, or that the oil is old, respectively.

In models with digital control, MULTIPLE 315, VM12 and VM16, an oil change indicator system is provided: after 15,000 operating cycles, when the machine is started up and at the end of each cycle, the display indicates an "oil alarm". The number of work cycles performed can be read at any moment by means of the keys on the control panel (See page 59).

ATTENTION! Do not touch the sealing bars after sealing a bag as they may be very hot (Fig. 1).

WARNING! Do not remove the Teflon cover on the sealing bars; do not use knives or other sharp tools to remove residua from the sealing bar: always wait for the bars to cool down before using blunt tools.

WARNING! Clean the machine thoroughly after use; clean the plexiglas cover using only a cloth dipped in water, avoid cleaning liquids and solvents. Use the special products available on the market for cleaning the stainless steel parts. Do not use water or steam jets as this can damage the machine's electrical equipment.

For all problems (defective working or technical assistance) please contact our Customer Service.

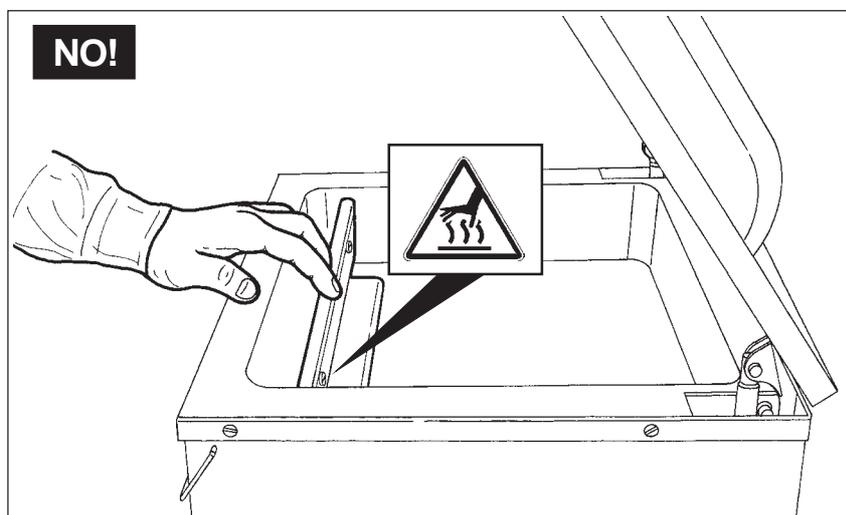


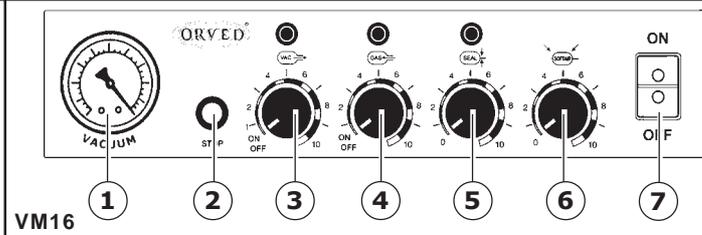
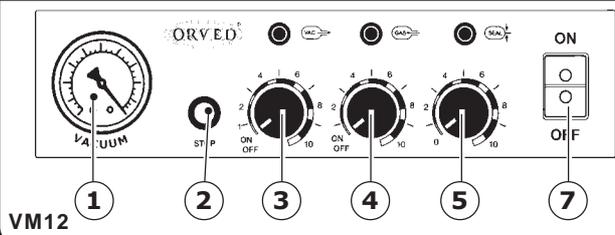
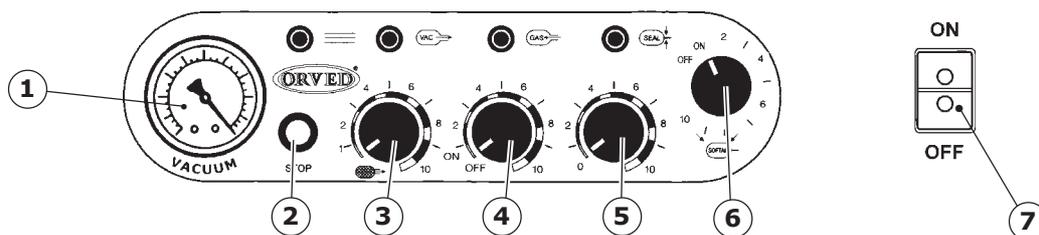
Fig. 1

5.4 CONTROL PANEL

VM12/VM16/VM18/VM18H/VM40N/VM53/VM53H/VM19/VM1800/VM20/VM30 WITH ELECTRO-MECHANICAL CONTROLS

- ① **VACUUM GAUGE** (0÷1 bar): MEASURES THE VACUUM IN THE VACUUM CHAMBER.
- ② **STOP** - STOP BUTTON: STOPS THE OPERATING PHASE AND PROCEEDS TO THE NEXT ONE SET;
FOR 380V VERSIONS: IF PRESSED FOR 3 SEC. THE PUMP FUNCTION IS ACTIVATED (CONTINUOUS OPERATION)
- ③ **VAC** - VACUUM ADJUSTMENT CONTROL KNOB: ADJUSTS THE PUMP OPERATING TIME TO MAKE IT POSSIBLE TO OBTAIN THE REQUIRED DEGREE OF VACUUM.
- ④ **GAS** - GAS ADJUSTMENT POTENTIOMETER (OPTIONAL): ADJUSTS THE QUANTITY OF GAS DELIVERED.
- ⑤ **SEAL** - SEALING TIME ADJUSTMENT POTENTIOMETER: ADJUSTS THE BAGS SEALING TIME.
- ⑥ **SOFTAIR** - SOFTAIR POTENTIOMETER (OPTIONAL): ADJUSTS THE CHAMBER DEVACUATE TIME.
- ⑦ **ON/OFF** - MAIN SWITCH: MACHINE ON/OFF AND INTERRUPT CYCLE.

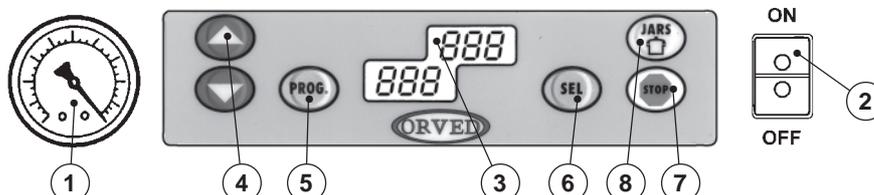
VM18
VM20
VM53
VM53H
VM30
VM1800
VM19



MULTIPLE 315 P4/P8 - VM12 - VM16 WITH DIGITAL CONTROLS

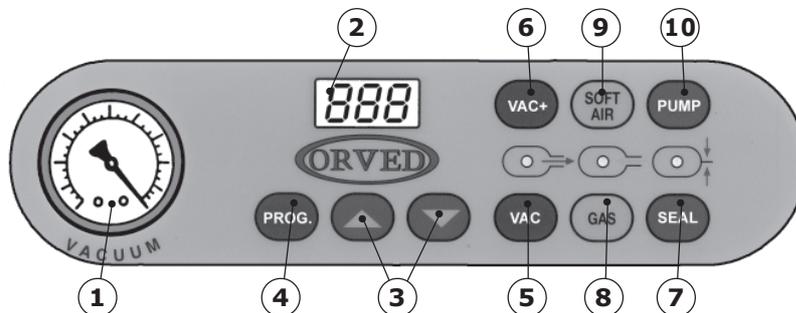
- ① **VACUUM GAUGE** (0÷1 bar): MEASURES VACUUM IN THE VACUUM CHAMBER.
- ② **ON/OFF** - MAIN SWITCH WITH RED INDICATOR LED:
MACHINE ON/OFF AND INTERRUPT CYCLE.
- ③ **THREE-DIGIT DOUBLE DISPLAY**

 - TOP THREE DIGITS: INDICATE THE PROGRAM ENTERED OR FUNCTION ACTIVATED:
Pr1 = PROGRAM SELECTED
VAC = VACUUM
SAL = SEALING
GAS = GAS INLET
SOF = SLOW AIR RETURN
JAR = JARS FUNCTION - (EXTERNAL CONTAINERS AND CHANNELLED BAGS VACUUM).
 - BOTTOM THREE DIGITS: INDICATE THE VALUE RELATIVE TO THE FUNCTION ACTIVATED AND THE CODE OF THE OPTIONS AVAILABLE: **G** = GAS / **S** = SOFTAIR; ALSO INDICATES THE NUMBER OF CYCLES PERFORMED AND THE OIL CHANGE ALARM.
- ④ **CURSOE**: PROGRAM SELECTION FROM "0" TO "9";
INCREASES/DECREASES THE VALUE OF EACH FUNCTION IN THE PROGRAM.
- ⑤ **PROG** - PROGRAMMING BUTTON: MAKES IT POSSIBLE TO ENTER PROGRAMMING OF THE INDIVIDUAL FUNCTIONS
- ⑥ **SEL** - FUNCTIONS SELECTION KEY: SELECTS THE FUNCTION TO BE PROGRAMMED
- ⑦ **JARS** - KEY FOR ACTIVATING VACUUM INSIDE OUTSIDE CONTAINERS AND/OR CHANNELLED BAGS;
ACTIVATES/ DEACTIVATES THE EXTERNAL EVACUATION SYSTEM OF CONTAINERS AND/OR CHANNELLED BAGS
- ⑧ **STOP** - STOP BUTTON: STOPS THE WORK CYCLE



VM18/VM18H/VM53/VM53H/VM19/VM1800/VM20/VM30 WITH DIGITAL CONTROLS

- ① **VACUUM GAUGE** (0÷1 bar): MEASURES VACUUM IN THE VACUUM CHAMBER.
- ② **THREE-DIGIT DISPLAY**
 -  1° DIGIT TO THE LH: INDICATES THE PROGRAM NUMBER ENTERED
 -  2° AND 3° DIGIT: INDICATE THE VALUE RELATIVE TO THE FUNCTION ACTIVATED
 - WHEN SWITCHED ON, THE MACHINE'S OPTIONAL FUNCTIONS ARE DISPLAYED.
G = GAS **S** = SOFTAIR **J** = JARS
 - DISPLAY FUNCTION ENTERED:
VAC = VACUUM
SAL = SEALING
GAS = GAS INLET
SOF = SLOW AIR RETURN
JAR = JARS FUNCTION - (EXTERNAL CONTAINERS AND CHANNELLED BAGS VACUUM).
 - ALSO INDICATES THE NUMBER OF CYCLES CARRIED OUT AND THE OIL CHANGE ALARM.
- ③ **CURSOR** PROGRAMS SELECTION:
INCREASES/DECREASES THE VALUES OF THE INDIVIDUAL FUNCTIONS IN THE PROGRAM
- ④ **PROG** PROGRAMMING KEY: MAKES IT POSSIBLE TO ENTER FUNCTIONS PROGRAMMING
- ⑤ **VAC** VACUUM PROGRAMMING KEY:
MAKES IT POSSIBLE TO ENTER THE VACUUM FUNCTION PROGRAMMING OR TO DISPLAY THE VALUE
- ⑥ **VAC+** SUPPLEMENTARY VACUUM PROGRAMMING KEY: MAKES IT POSSIBLE TO ENTER THE SUPPLEMENTARY VACUUM FUNCTION PROGRAMMING OR DISPLAY THE VALUE
- ⑦ **SEAL** SEALING TIME PROGRAMMING KEY:
MAKES IT POSSIBLE TO ENTER THE SEALING FUNCTION PROGRAMMING OR DISPLAY THE VALUE;
MAKES IT POSSIBLE TO STOP THE ACTIVE OPERATING PHASE AND PROCEED WITH THE NEXT ONE
- ⑧ **GAS** GAS PROGRAMMING KEY:
MAKES IT POSSIBLE TO ENTER THE GAS FUNCTION PROGRAMMING OR DISPLAY THE VALUE
- ⑨ **SOFTAIR** SOFTAIR PROGRAMMING KEY:
MAKES IT POSSIBLE TO ENTER THE SOFTAIR FUNCTION PROGRAMMING OR DISPLAY THE VALUE
- ⑩ **PUMP** JARS OR PUMP FUNCTION START-UP KEY: MAKES IT POSSIBLE TO START-UP WORKING OF THE PUMP FOR VACUUM IN EXTERNAL CONTAINERS/ CHANNELLED BAGS OR FOR CONTINUOUS PUMP OPERATION



5.5 DEFINITIONS OF THE FUNCTIONS

5.5.1 VACUUM FUNCTION (VAC)

VERSIONS WITH ELECTRO-MECHANICAL CONTROL

The **VAC** function is timed and expressed in seconds.

The factors that determine the time setting are as follows:

a) Volume of air to be extracted from the chamber;

b) Extent of oil usage: the pump performance reduces with increase in the number of operating hours and resulting in deterioration of the oil characteristics.

Once the maximum volume is reached (indicated by the vacuum gauge (1) as -1.0 bar) the pump must continue to run for another 10 seconds to obtain the maximum possible vacuum.

The **VAC** time setting must be suitable for actual operating conditions. If the product dimensions change with each packaging cycle, just carry out a test run without product inside the chamber and keep the value set as valid for achieving the maximum possible vacuum in these conditions. If packaging of products having the same dimensions is to be repeated, carry out the test run with the product-type inside the chamber, with a suitable number of insertion plates.

VERSIONS WITH DIGITAL CONTROL

a) Models with vacuum sensor (percentage programming).

The machine is provided with a sensor which measures the quantity of vacuum (or the depression) created inside the chamber: this quantity is expressed in percentage. The maximum value that can be obtained is 99%. The parameter is set using the **VAC** key. In models VM18, VM19, VM20, VM1800, VM53 and VM30, once maximum vacuum is achieved, a supplementary vacuum creation time can be added using the **VAC+** key, expressed in seconds, useful for obtaining the maximum possible vacuum. In models VM12 and VM16, the **VAC+** can be set by pressing the **SEL** key after the **VAC** function programming. THE **VAC+**FUNCTION CAN ONLY BE ACTIVATED IF THE **VAC** PARAMETER HAS BEEN SET AT 99%.

b) Models without vacuum sensor (timed program).

In machines with this type of program (models VM12 - VM16 and MULTIPLE), the **VAC** parameter is timed and expressed in seconds. The **VAC** time setting must be suitable for actual operating requirements. The time will be initially set approximately at 25-30 seconds and modified, if necessary, in the second cycle. To obtain absolute vacuum, starting from the moment the vacuum gauge indicates -1.0 bar, the pump will continue to run for another 10 seconds. In machines with **VAC** parameter time setting, there is no provision for the **VAC+** function.

Packaging liquid products.

Great care must be taken in packing liquid products or products with high moisture content: the greater the vacuum percentage, the lower the liquid boiling point.

The moment the boiling point is reached, air bubbles are formed in the product.

The consequent formation of water vapour, if extracted by the pump, will reduce the pump life.

WARNING! Before starting with packing of liquid products, run the pump by adjusting the **VAC** control knob or key to the maximum value and resetting all other functions. Repeat the operation twice, in order to obtain a pump heating time of about 2 minutes.

Set the vacuum parameter at such a value as to prevent boiling of the liquid product.

Increase the pump oil change frequency by following the instructions in the "MAINTENANCE" chapter.

Stop the work cycle immediately if liquid starts leaking out of the bag. The operation must be carried out with an inclined table top for liquids, available as optional.

5.5.2 GAS FUNCTION (OPTIONAL)

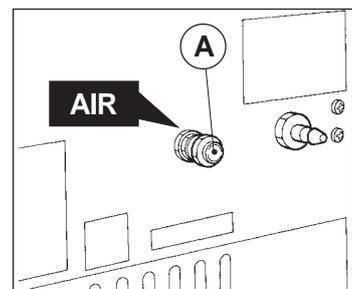
Product packaging by flushing with gas is available as optional. The **GAS** option makes it possible to pack delicate products without pressing due to pressure difference. To compensate for this pressure difference, the air is replaced with a controlled gas mixture generally consisting of 30% carbon dioxide and 60% nitrogen. It is also possible to use antioxidant gas mixtures which help prolong the shelf-life. To select the suitable mixture, consult the information leaflet of the best gas production Companies.

The maximum permitted percentage of gas is 60%. This percentage represents the chamber volume occupied by the gas. Beyond the 60% limit, the pressure exerted by the sealing bar on the bag may be insufficient and bag sealing may be defective. The percentage is read by the vacuum gauge: -0.4 bar corresponds to a gas value equal to approx. 60%; at -0.3 bar it is equal to 60% and so on. If the cover opens during the cycle, reduce the gas flushing time. In versions with digital control, the percentage is indicated directly on the display.

5.5.3 SEALING FUNCTION (SEAL)

After vacuum creation and gas flushing (if envisaged), the machine proceeds with bag sealing by means of the sealing bar provided with sealing wire. The sealing time varies according to the bag basic weight, environmental temperature and the quantity of work to be done. In any case, the seal seam on the bag must be uniform, clearly marked, without melted points. In machines with electro-mechanical controls, indicatively, for a bag with basic weight 90/100 (very thin), set the **SEAL** control knob on value 3.5; for bags with basic weight 150/100 (thicker) adjust the value to 4. In digital versions, set a sealing time suitable for the bag, approximately between 2 and 4 seconds.

NOTE If it is found to be necessary to seal very thick bags, or bags made of special material (such as aluminium), the models VM19/20/1800 and 30 are provided with a compressed air connection (A) to increase the pressure exerted on the sealing bar. The pressure must be adjusted upline of the air delivery pipe by means of the pressure regulator set at a maximum value of 1 bar. The use of compressed air in sealing is quite rare, since the pressure exerted by the machine's system is sufficient in almost all cases.



5.5.4 SOFTAIR FUNCTION (OPTIONAL)

Slow devacuumation in the vacuum chamber after bag sealing makes it possible to pack delicate products or products with sharp cutting edges (e.g. hard cheeses, speck, raw ham, ribs etc.) thereby avoiding damage to the bags due to excessively rapid decompression.

For packing cheese segments it is advisable to smooth the edges.

The parameter is set on a timed basis by means of the **SOFTAIR** control knob in versions with electro-mechanical controls ("SOFTAIR" key in the digital versions). The optimum value can be determined after a few test runs before packaging the product in series.

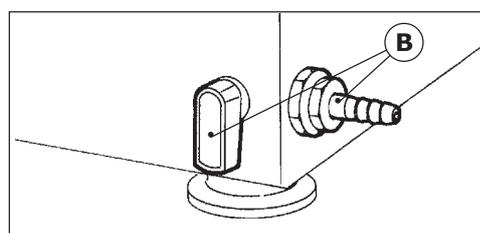
5.5.5 JARS FUNCTION (B)

With the **JARS** function, it is possible to create vacuum in external containers (vacuum box) in models provided with a special valve or pack channelled bags that are longer than the standard dimensions permitted by the vacuum chamber, outside the machine.

In versions with electro-mechanical control, the parameter setting is manual and is done by turning the **VAC** knob to OFF.

The function is deactivated manually by turning the **VAC** control knob to the preset value, after maximum vacuum is achieved (measured by the vacuum gauge).

In the digital versions, the **JARS** function is activated by means of the **JARS** key. The function is deactivated manually after the maximum vacuum is achieved, measured by the vacuum gauge.



5.5.6 STOP FUNCTION

In versions with electro-mechanical controls and in digital versions of models **MULTIPLE, VM12 and VM16**, pressing the **STOP** button will cause the machine to interrupt the function in progress immediately and proceed with the next one. It is particularly suitable for avoiding liquids extraction or incorrect positioning of bags. In case of an emergency, turn off the machine using the main switch.

In digital versions of models VM18, VM19, VM20, VM30, VM53, VM53H, VM1800: operation is interrupted by pressing the **SEAL** key.

5.5.7 PUMP FUNCTION

The Pump function, which in versions with electro-mechanical versions can be activated by means of the **STOP** button kept pressed for three seconds and the plexiglas cover open, available in models VM19, VM20, VM20 TANDEM, VM1800 and VM30, allows continuous pump operation. The result is increased pump performance over time and longer life.

The function is recommended if product packing is to be done in series.

In the digital versions, the function is activated by means of the **PUMP** key.

6. USING THE MACHINE

6.1 PREPARATION

WARNING! The product to be packed must be dry and cold to obtain maximum vacuum. The pump performance is reduced if there is moisture in the product or the vacuum chamber. Therefore, clean the vacuum chamber and insertion plates carefully. Soft products may be damaged by the compression in the bag when the cycle is complete. Use bags having thickness and size suitable for the product hardness and dimensions.

- Lower lid holder (C): the vacuum chamber plexiglas cover (D) opens.
Position the maximum number of insertion plates (E) the chamber can hold, depending on the dimensions of the product to be packed. The longest insertion plate (in models with insertion plates of different lengths) must always be at the top as it will otherwise hinder vertical movement of the sealing bar.
- Choose a bag suitable for the product to be packed (the product must take up 2/3 of the bag volume). Insert inside the vacuum chamber the bag (F), containing the product to be packed and center it on the sealing bar (G), so that the open edge projects by about 20mm beyond the bar. For models with bar length sufficient to pack a number of bags simultaneously and for multi-bar models, distribute the bags at regular distances (=) (Fig. 1).

PRELIMINARY CALIBRATION FOR MODELS WITH DIGITAL CONTROLS WITH VACUUM SENSOR

When used for the first time, the vacuum sensor must be calibrated according to the atmospheric pressure (depending on the altitude of the place), as follows:

- Switch On the machine keeping the PROG key pressed simultaneously. The display shows TAR.
- Lower the lid with both hands, pressing the corners slightly. The machine will start calibration which will end automatically after about two minutes with air returning to the chamber and consequent opening of the lid.

WARNING! The procedure must be repeated only if the machine is moved to a place at a different altitude.

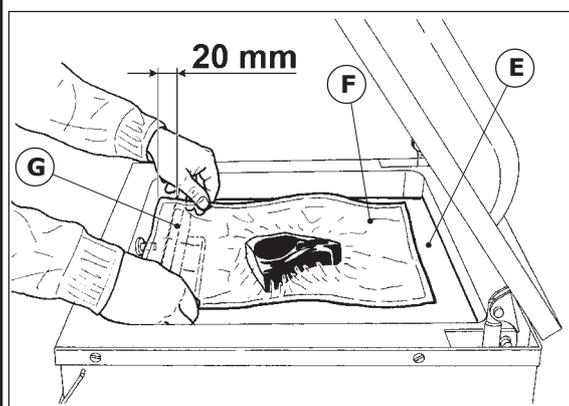
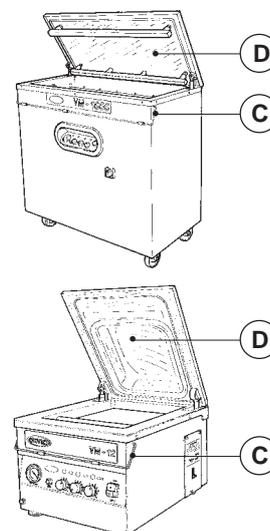
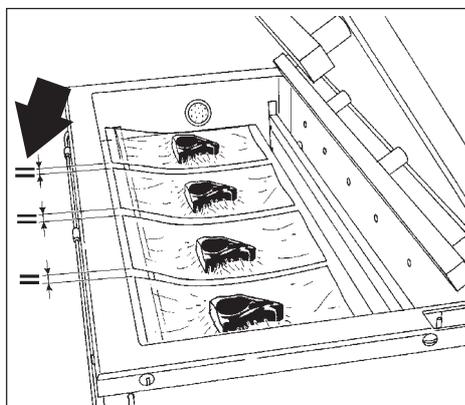


Fig. 1



6.2 OPERATION

6.2.1 MACHINES WITH ELECTRO-MECHANICAL CONTROLS

BASIC OPERATION (VACUUM AND SEALING BAGS)

1) SWITCHING ON

Turn on the main switch on the front of the machine; a LED on the control panel (models VM18/53/19/1800/20/30) or an indicator light on the switch (modelli VM12/16) lights up;



2) SETTING THE VACUUM CREATION TIME

The time may be set approximately by initially adjusting the **VAC** control knob in the value range 4.5 - 5 and must be modified, if necessary, in the second cycle. It is therefore advisable to carry out a few test runs before starting product packaging in series, so as to calibrate the parameter and optimize operating times.



3) SETTING THE SEALING TIME

For bags with basic weight 90/100, adjust the **SEAL** control knob to position 3.5; for bags with basic weight 150/100, set the control knob on 4.



4) STARTING THE WORK CYCLE

Lower the lid using both hands, pressing the corners slightly (**Fig. 2**). The machine will start the work cycle according to the vacuum and sealing values set.

5) WORK CYCLE END

The machine automatically ends the cycle after the sealing bar cooling phase, and when the lid re-opens. Remove the packed product and check the bag seal: it must be uniform, clearly marked, without melted points. Adjust the values set, if necessary, and then proceed with the second cycle.

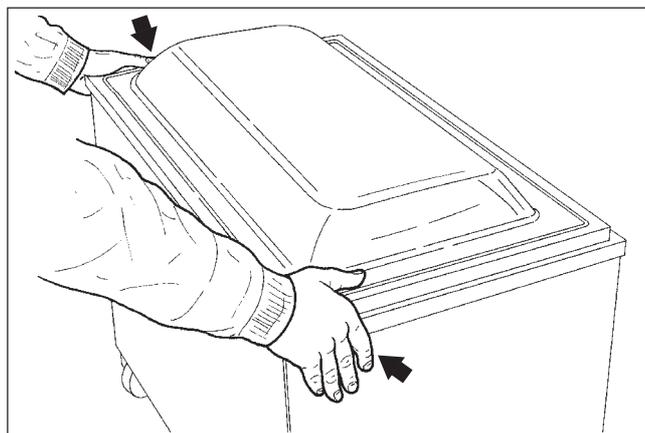
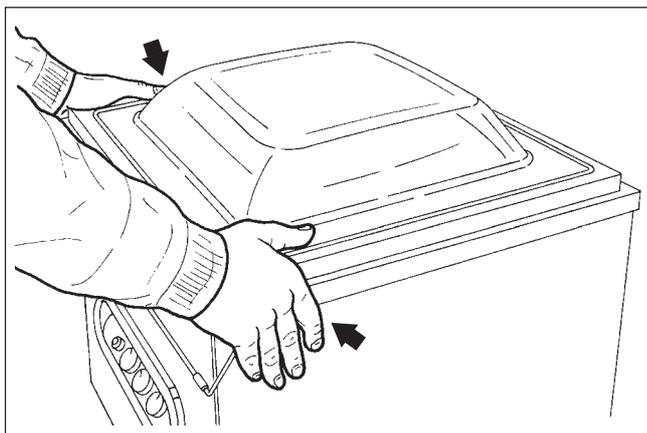


Fig. 2

OPERATION WITH GAS OPTION INCLUDED

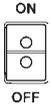
To include the GAS option, proceed as follows:

1) CONNECTION TO THE GAS CYLINDER

Connect the cylinder to the machine by inserting the hose into the hose connector **(A)** provided on the rear panel (see photo). Open the cylinder (supplied by a specialist Company) valve and adjust the cylinder pressure by means of the pressure reducer supplied together with it at 0.5 - 1 bar.

2) SWITCHING ON

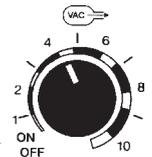
Turn On the main switch on the front of the machine; a LED on the control panel (models VM18/53/19/1800/20/30) or an indicator light on the switch (models VM12/16) lights up;



3) Insert the open end of the bag on the gas hose **(B) fitted on the same side as the sealing bar.**

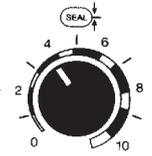
4) SETTING THE VACUUM CREATION TIME

Set the time using the **VAC** control knob. The time can be set initially, indicatively, in the value range of 4.5 - 5 and, if necessary, modified in the second cycle. It is therefore advisable to carry out a few test runs before proceeding with product packaging in series, in such a manner as to set the parameter to avoid waste of time.



5) SETTING THE SEALING TIME

Set the sealing time using the **SEAL** control knob. For bags with basic weight 90/100, set the **SEAL** control knob at 3.5; for bags with basic weight 150/100, turn it to position 4.



6) SETTING GAS OPTION

Set the gas flushing time by turning the **GAS** control knob to a maximum value of 4 - 5. The maximum permitted gas pressure is equal to 60%; beyond this value, the pressure exerted by the sealing bar on the bag may be insufficient and the bag sealing may be defective. The quantity of gas flushed can be adjusted by adjusting the **GAS** control knob according to the vacuum gauge reading: note that the maximum gas percentage (60) corresponds to a vacuum of 0.40 bar. In the "OFF" position, the **GAS** function is deactivated. When the **STOP** button is pressed, the machine proceeds to the sealing phase. If the lid opens during the cycle, reduce the gas flushing time.

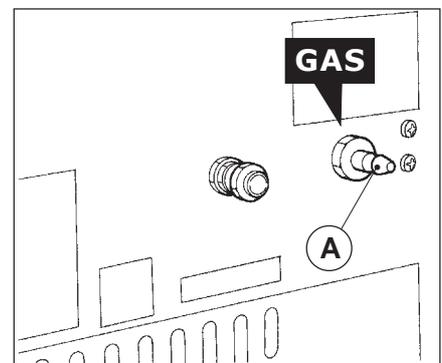
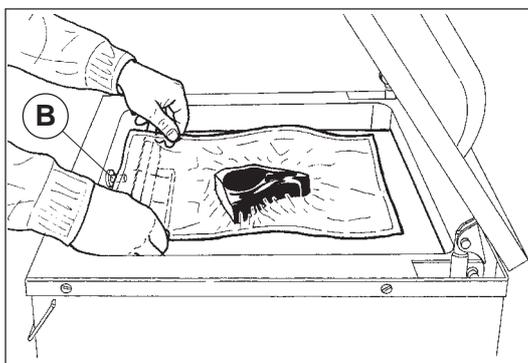
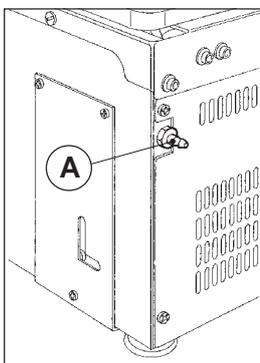


7) STARTING THE WORK CYCLE

Lower the lid with both hands, pressing slightly on the corners. The machine will start the work cycle according to the vacuum, gas and sealing values set.

8) WORK CYCLE END

The machine automatically ends the cycle after the sealing bar cooling phase and when the lid opens. Remove the packed product and check the bag seal. Adjust the values set, if necessary, and then proceed with the second cycle.



ELECTROMECHANICAL CONTROLS

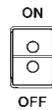
GB

OPERATION WITH "SOFTAIR" OPTION INCLUDED (AVAILABLE ON ALL MODELS EXCEPT VM12)

To activate the SOFTAIR option, proceed as follows:

1) SWITCHING ON

Turn On the main switch on the front of the machine; the LED on the control panel (models VM18/53/19/1800/20/30) or an indicator on the switch (models VM12/16) lights up;



2) SETTING THE VACUUM CREATION TIME

Set the time using the **VAC** control knob. The time may initially be set at a value in the range of 4.5 - 5 and modified, if necessary, during the second cycle. It is therefore advisable to carry out a few test runs before proceeding with product packaging in series, in order to set the parameter, to avoid wasting time.



3) SETTING THE SEALING TIME

Set the sealing time using the **SEAL** control knob. For bags with basic weight 90/100, set the **SEAL** control knob on 3.5; for bags with basic weight 150/100, turn the knob to 4.



4) SETTING THE GAS OPTION

Set the gas flushing time by turning the **GAS** control knob to a maximum value of 4 - 5. The maximum permitted gas pressure is equal to 60%; beyond this value, the pressure exerted by the sealing bar on the bag may be insufficient and the bag sealing may be defective. The quantity of gas flushed can be adjusted by adjusting the **GAS** control knob according to the vacuum gauge reading: note that the maximum gas percentage (60) corresponds to a vacuum of 0.40 bar. In the "OFF" position, the **GAS** function is deactivated. When the **STOP** button is pressed, the machine proceeds to the sealing phase. If the lid opens during the cycle, reduce the gas flushing time.



5) SETTING THE SOFTAIR OPTION

Set the time using the **SOFTAIR** control knob according to the product consistency and type: a particularly sharp and cutting shape requires more time. Therefore, it is advisable to carry out a few test runs.



6) STARTING THE WORK CYCLE

Lower the lid with both hands, pressing slightly on the corners. The machine will start the work cycle according to the vacuum, gas and sealing values set.

7) WORK CYCLE END

The machine ends the cycle automatically after the slow devacuation phase and the lid re-opens. Remove the packed product and check to make sure it is intact; adjust the settings, if necessary.

**OPERATION WITH THE "PUMP" FUNCTION ACTIVATED
(AVAILABLE ON THREE-PHASE MODELS VM53H-VM19-VM20- VM20 TANDEM - VM1800-VM30)**

To operate with the PUMP function activated, proceed as follows:



After setting all the functions; press the STOP button for 3 seconds: the pump starts operating.

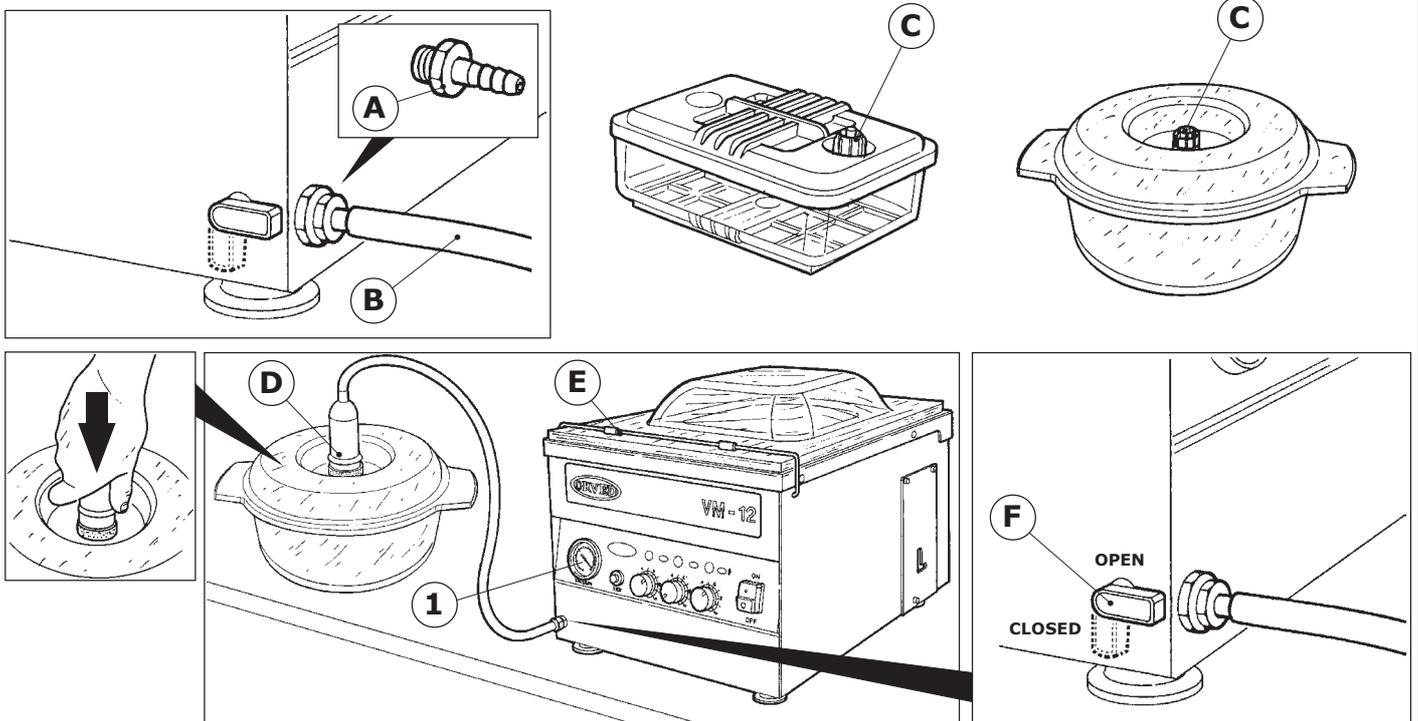
Lower the lid with both hands, pressing slightly on the corners. The machine will start the work cycle according to the Vacuum, Gas and Sealing values set; when the operation ends, the lid opens, while the pump continues to operate. To stop pump operation, press the STOP button again for 3 seconds.

To end the work cycle, switch the machine off by the means of the main switch and remove the plug from the socket.

CREATING VACUUM IN EXTERNAL CONTAINERS AND BAGS ("JARS" FUNCTION) (VM12 - VM16)

CREATING VACUUM IN EXTERNAL CONTAINERS

- 1) Screw hose connector (A) supplied with the machine on the connection provided on the front and insert hose (B) provided with suction cup.
- 2) Prepare the lid fitted with a valve by slightly unscrewing ring nut (C) on the valve so that the sealing plug inside it can move.
- 3) Position suction cup (D) on the lid valve after placing it on the container (jar, vessel, vacuum box, etc.) inside which vacuum is to be created.
- 4) Switch the machine On, turn the VAC control knob to "OFF" and all other control knobs to zero. When machine lid (E) is lowered, the pump starts operating.
- 5) The moment the vacuum gauge (1) indicates -1.0 bar, open lever (F) on the side so that it will be possible to start suction from the containers through the hose. When the operation is complete, turn the VAC control knob to the preset value.
- 6) Tighten ring nut (C) on the valve immediately to prevent air return to the container.

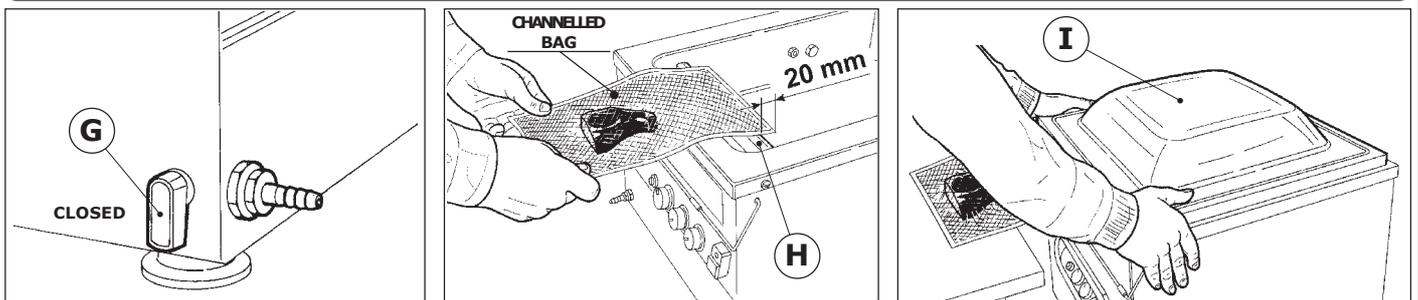


CREATING VACUUM INSIDE EXTERNAL CHANNELLED BAGS

- 1) Switch the machine On and set the sealing value using the SEAL control knob.
- 2) Check lever (G) of the JARS (if installed) valve to ensure it is closed.
- 3) Turn the VAC control knob to the OFF position.
- 4) Place the bag about 20mm beyond the sealing bar (H) in a specular position, then start up the machine by lowering lid (I).
- 5) When vacuum creation inside the bag is complete, i.e. the vacuum gauge indicates -1.0 bar, press STOP. The bag will be sealed and the cycle will be complete with devacuumation and opening of the lid.



WARNING!
THIS OPERATION IS ONLY POSSIBLE WITH CHANNELLED BAGS.



6.2.2 MACHINES WITH DIGITAL CONTROLS

PRELIMINARY CALIBRATION OF MODELS WITH VACUUM SENSOR

In models with sensor, with vacuum setting in percentage, when the machine is used for the first time, the vacuum sensor must be calibrated according to the atmospheric pressure (depending on altitude), as follows:

- Switch the machine On keeping the PROG key pressed simultaneously. The display shows TAR.
- Lower the lid with both hands, exerting slight pressure at the corners. The machine will start calibration which ends automatically after about two minutes with air returning to the chamber and consequent opening of the lid.
- The procedure is repeated automatically if the machine is moved to a place at a different altitude.

OPERATION AND PROGRAMMING OF MODELS: MULTIPLE 315-P4/P8 - VM12 - VM16

WARNING! the appliance has two basic programs (models without gas option) or three basic programs (models with gas option) that are factory-set. The user must proceed with programming the remaining programs according to his operating requirements, depending on the type and wquantity of product to be packed.

PROGRAMMING THE VAC, GAS, SEAL AND SOFTAIR FUNCTIONS OF MODELS MULTIPLE 315-P4/P8 - VM12 - VM16



1) SWITCHING ON

Turn On the main switch on the control panel; the LED in the switch lights up; the display shows the initials of the options available for three seconds; this is followed by display of the program number set in the top quadrant and eventual functions activated in the bottom quadrant (V=JARS; G=GAS; S=SOFTAIR).



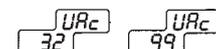
2) **PROGRAM SELECTION:** Select the program (from 0 to 9) using arrows .

3) **SELECTING THE VAC FUNCTION** (See page 49): Select the **VAC** function by means of key .



4) **PROGRAMMING THE VAC FUNCTION** (See page 49): Enter the program by pressing : the digits on the display start flashing.

Set the required value expressed in seconds or percentage (in machines provided with vacuum sensor) using arrows . Confirm by means of or proceed with programming the successive functions by pressing .



5) **SELECTING THE VAC+ FUNCTION** (See page 49): Select the **VAC+** function by means of . The function is active and visible only in machines with vacuum sensor.



6) **PROGRAMMING THE VAC+ FUNCTION** (See page 49): The digits on the display start flashing. Set the required value using

arrows . Confirm by means of or proceed with programming the successive functions by pressing .

7) **SELECTING THE GAS FUNCTION (OPTIONAL)** (See page 49): Select the **GAS** function by means of .



8) **PROGRAMMING THE GAS FUNCTION** (See page 49): The digits on the display start flashing. Set the required value using arrows

. Confirm by means of or proceed with programming the successive functions by pressing .

9) **SELECTING THE SEAL FUNCTION** (See page 49): Select the **SEAL** function by means of .



10) **PROGRAMMING THE SEAL FUNCTION** (See page 49): The digits on the display start flashing. Set the required value using arrows

. Confirm by means of or proceed with programming the successive functions by pressing For bags with basic weight 90/100, set the value as 2.2 - 3 seconds.

11) **SELECTING THE SOFTAIR FUNCTION (OPTIONAL)** (See page 49): Select the **SOFTAIR** function by means of .



12) **PROGRAMMING THE SOFTAIR FUNCTION** (See page 49): The digits on the display start flashing.

Set the required value using arrows .

13) **CONFIRMING THE PROGRAMMING:** There are three ways to confirm the program set:

- press **PROG**;
- press **SEL** until the program number reappears and the display stops flashing;
- wait for about seven seconds without pressing any key.
It is now possible to proceed with other program settings, or proceed with packaging.

14) **STARTING THE WORK CYCLE:** Lower the lid **with both hands** pressing slightly on the corners. The appliance will start the work cycle according to the programmed parameters.

15) **WORK CYCLE END:** The appliance ends the cycle automatically after the sealing bar cooling, with air re-entering the chamber resulting in opening of the lid. Remove the packed product and check the bag seal: it must be uniform, clearly marked without melted points. If necessary, adjust the preset values and proceed with the second cycle.

INTERRUPTING THE WORK CYCLE MULTIPLE 315-P4/P8 - VM12 - VM16

The work cycle can be interrupted at any moment by pressing **STOP**; interruption is immediate with air re-entering the chamber. The work cycle can also be interrupted by means of the main switch; the cycle is interrupted but air does not re-enter the suction cup: the lid therefore remains closed. When the machine is switched on again, the cycle is reset, air returns to the chamber and the lid opens.

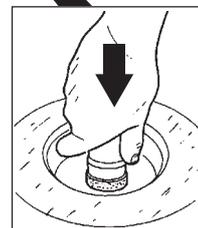
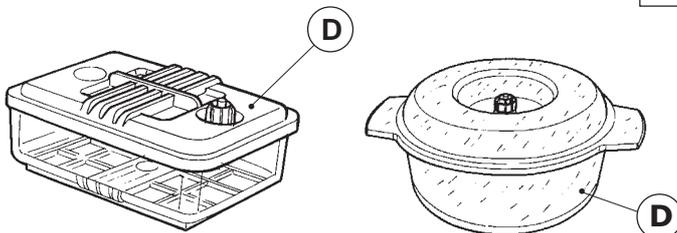
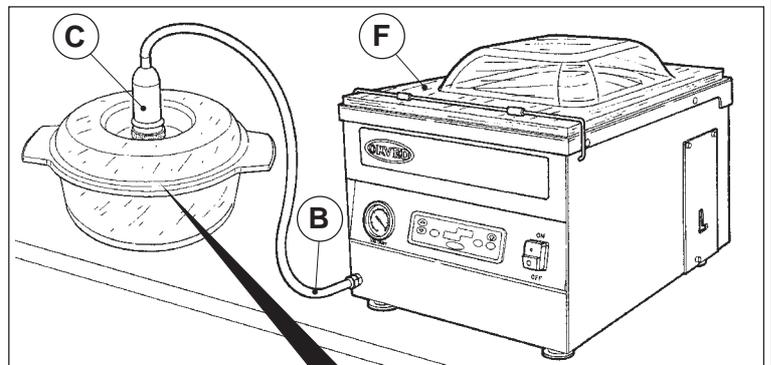
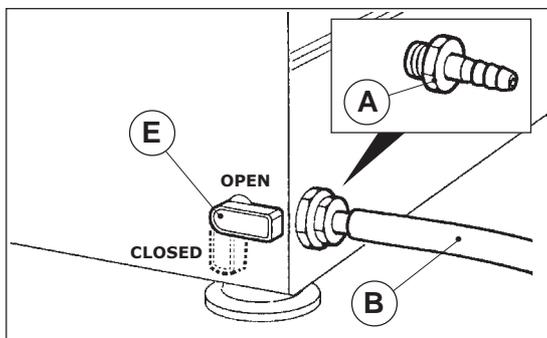
PROCEEDING TO THE SUCCESSIVE PHASE IN ADVANCE MULTIPLE 315-P4/P8 - VM12 - VM16

It is possible to proceed to the successive function before reaching the maximum value, by pressing **SEL**.

PROGRAMMING THE JARS FUNCTION MULTIPLE 315-P4/P8 - VM12 - VM16

CREATING VACUUM IN EXTERNAL CONTAINERS

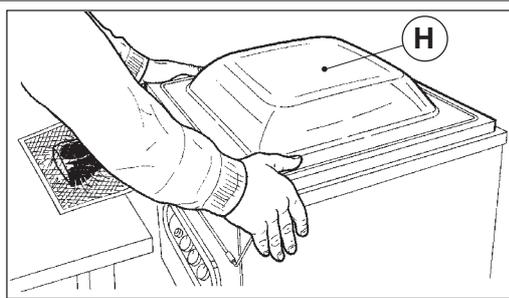
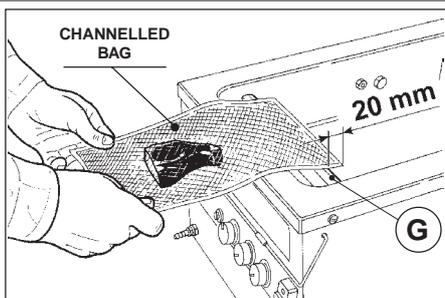
- 1) Screw hose connector (A) supplied with the machine on the union provided on the front of the machine and insert hose (B) provided with suction cup (C).
- 2) Prepare the lid provided with valve by unscrewing ring nut (D) slightly so that the sealing plug inside it can move.
- 3) Position the suction cup on the lid valve after placing the lid on the container (jar, vessel, vacuum box, etc.), inside which vacuum is to be created.
- 4) Close the jars valve (E) fitted on the side of the appliance.
- 5) Activate the function by pressing the yellow key **JARS** and lower the machine lid (F). Wait for the vacuum gauge to indicate maximum vacuum.
- 6) Open cock lever (E). Vacuum is formed in the container. When the operation ends, press **STOP**.
- 7) Tighten ring nut (D) on the wall promptly to prevent air from entering the container.



CREATING VACUUM IN EXTERNAL CHANNELLED BAGS (See page 50)

- 1) Switch the machine On and set the sealing value by selecting the **SEAL** function using **SEL** at 2.7 - 3 seconds; deactivate the GAS and SOFTAIR functions if present (it is advisable to program a special cycle).
- 2) Press the yellow button **JARS**; position the bag at about 20 mm beyond the sealing bar **(G)**, then start up the cycle by lowering lid **(H)**. 
- 3) When vacuum formation inside the bag is complete, i.e. the vacuum gauge indicates -1.0bar, press **SEL**.
Bag sealing follows and the cycle is completed with re-entry of air and opening of the lid.

WARNING!
THIS OPERATION IS ONLY POSSIBLE WITH CHANNELLED BAGS.



OIL CHANGE ALARM AND WORK CYCLES DISPLAY MODELS MULTIPLE 315-P4/P8 - VM12 - VM16

When the appliance has completed the maximum limit of 15,000 cycles, the display shows - immediately when the machine is switched On and at the end of every work cycle - **"AL oil"**, which indicates the need to change the pump oil. Proceed with the operation as described in the "CHANGING PUMP OIL" paragraph. 

The number of cycles performed can be displayed by pressing the  , **JARS** and **STOP** keys simultaneously; the display shows **"cic"** and the number expressed in hundredths.

For example, **"cic 048"** indicates that **48x100 = 4800** work cycles have been reached 

To reset the value, after pressing the four buttons mentioned above, immediately press **STOP**.

OPERATION AND PROGRAMMING MODELS VM18-VM18H-VM53-VM53H-VM19-VM1800-VM20-VM30

Attention: the appliance has two basic programs (models without gas option) or three basic programs (models with gas option) that are factory-set. The user must proceed with programming the remaining programs according to his operating requirements, depending on the type and quantity of product to be packed.

**PROGRAMMING THE VAC, GAS, SEAL E SOFTAIR FUNCTIONS
MODELS VM18-VM18H-VM53-VM53H-VM19-VM1800-VM20-VM30**



1) SWITCHING ON

Turn the **ON/OFF** main switch on the front of the machine to ON; the display shows the initials of the available options for three seconds; then the program number is displayed by the first digit to the left. 

2) SELECTING THE PROGRAM

Select the program (from 0 to 9) by means of arrows  . Scroll through the programs; if the GAS or SOFTAIR options are envisaged and set, the respective indicator LED lights up.

3) PROGRAMMING THE VAC FUNCTION (See page 50)

Enter the programming by pressing **PROG**; the program number starts flashing. Select the **VAC**; function; the VAC function LED starts flashing.

Set the required value using arrows   and confirm by means of **PROG**, or proceed with the programming by pressing the key for the required function.

4) PROGRAMMING THE VAC+ FUNCTION (See page 50)

Select the **VAC+** function; the relative LED starts flashing. Set the required value using arrows   and confirm by pressing **PROG**, or proceed with the programming by pressing the required function key.

5) PROGRAMMING THE GAS FUNCTION (OPTIONAL) (See page 50)

Select the **GAS** function; the relative LED starts flashing. Set the required value using arrows   and confirm by pressing **PROG**, or proceed with the programming by pressing the required function key.

6) PROGRAMMING THE SEAL FUNCTION (See page 50)

Select the **SEAL** function; the relative LED starts flashing. Set the required value using arrows   and confirm by pressing **PROG**, or proceed with the programming by pressing the required function key.

7) PROGRAMMING THE SOFTAIR FUNCTION (OPTIONAL) (See page 50)

Select the **SOFT AIR** function; the relative LED starts flashing. Set the required value using arrows   and confirm by pressing **PROG**. It is now possible to proceed with setting other programs or proceed with the packaging.

8) WORK CYCLE START : Lower the lid **using both hands** pressing it slightly at the corners. The appliance will start the work cycle according to the programmed parameters.

9) WORK CYCLE END: The appliance automatically ends the cycle after the sealing bar phase and re-entry of air in the chamber with consequent opening of the lid. Remove the packed product and check the seal; it must be uniform, well marked and without melted points. Adjust the preset values, if necessary, and proceed with the second cycle.

INTERRUPTING THE WORK CYCLE VM18-VM53-VM19-VM20-VM30-VM1800

Activate the **SEAL** button; the work cycle can be interrupted at any moment; interruption is immediate with air re-entering the chamber. The work cycle can also be interrupted by means of the **ON/OFF main switch**: when the appliance is switched off, the cycle is interrupted but air does not return to the suction cup: the lid therefore remains closed. When the appliance is switched on again, the cycle is reset, air returns to the chamber and the lid opens.

ACTIVATING AND DEACTIVATING THE GAS AND "SOFTAIR" FUNCTIONS VM18-VM53-VM19-VM20-VM30-VM1800**ACTIVATION**

- Press **PROG**
- Press the function key to be activated; the display flashes alternately with "GAS/SI" or "SOF/SI"; a few seconds later, the value set is displayed. Change the value using the cursor keys and/or confirm by means of **PROG**; the LED remains On and the function is activated.

DEACTIVATION

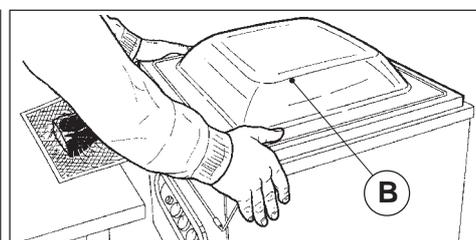
- Press **PROG**
- Press the **PROG** key of the function to be deactivated, the display flashes showing "GAS/NO" or "SOF/NO"; a few seconds later the LED and function are deactivated.

**PROGRAMMING THE JARS FUNCTION IN MODEL VM18
FOR CREATING VACUUM IN EXTERNAL CHANNELLED BAGS**

- 1) Switch the appliance On and set the sealing value; deactivate the GAS and SOFTAIR present (programming a special cycle is recommended).
- 2) Press **PUMP**; position the bag about 20mm beyond sealing bar **(A)**, then start the cycle by lowering lid **(B)**.
- 3) When vacuum formation has been completed inside the bag, press **SEAL**. The appliance will proceed to the bag sealing phase. The cycle ends when air returns to the chamber and the lid opens.

ACTIVATING THE "PUMP" FUNCTION IN MODELS WITH THREE-PHASE POWER SUPPLY

The pump function can be activated both before and after programming the appliance by pressing the **PUMP** key; the relative LED lights up and the pump operation noise becomes audible.



6.2.3 PACKING LIQUID PRODUCTS

WARNING! With lowering of the pressure inside the vacuum chamber, the liquid boiling point is lowered. Water at 23.4 absolute mbar (corresponding to a vacuum of 97.66%) boils at 20°. Steam formation is evident from the bubbles forming inside the bag. In this case, press the STOP button and reset the VAC parameter to such a level as to prevent bubble formation.

The operation is carried out with a help of an inclined work top for liquids (A) available as optional.

- 1) Lower the lid holder: the plexiglas cover of the chamber opens.
- 2) Remove all the insertion plates and insert the inclined work top (A) in the chamber with the upper part facing the sealing bar and sliding retainer (B) adjusted along the bag length.
- 3) Insert the bag containing the liquid to be packed inside the chamber, making sure that it is only half-filled (1/2) (Fig. 1). Place it centered on the sealing bar, so that the open end projects by about 20mm beyond the bar.
- 4) Repeat the operations described in the "VACUUM CREATION/PROGRAMMING" paragraphs, adjusting the vacuum time to such a value as to avoid boiling.

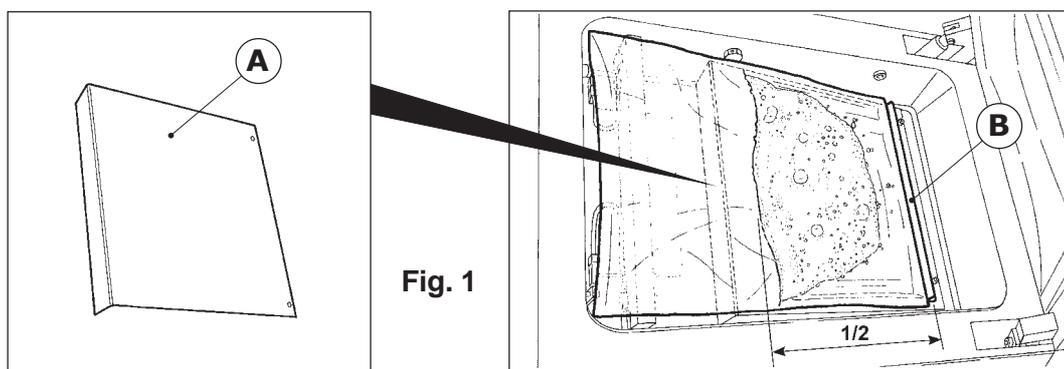


Fig. 1

WARNINGS!

- THE PRODUCT TO BE PACKED MUST BE DRY AND COLD; CHOOSE A BAG HAVING A SHAPE AND THICKNESS SUITABLE FOR THE SIZE, HARDNESS AND ANGULARITY OF THE PRODUCT.
- BEFORE STARTING WITH VACUUM PACKAGING OF PRODUCTS IN THE CHAMBER, CHECK TO MAKE SURE THE CONTAINERS VALVE LEVER, ON THE LEFT SIDE OF THE MACHINE IF PRESENT, IS CLOSED.
- IN MACHINES WITH DIGITAL CONTROLS WITH SENSOR, CALIBRATION MUST BE CARRIED OUT BEFORE USING THE MACHINE FOR THE FIRST TIME.
- THE ABSOLUTE VACUUM VARIES ACCORDING TO THE ALTITUDE AT WHICH THE APPLIANCE IS USED. AT SEA LEVEL, IT IS EQUAL TO -1.0 bar, WHILE AT 1000 MT.b.s.l. IT IS REDUCED TO ABOUT 0.9 bar.
- VACUUM CAN ALSO BE CREATED IN CONTAINERS BY INSERTING THEM DIRECTLY IN THE VACUUM CHAMBER. IN THIS CASE, THE SEALING TIME AND GAS FLUSHING TIME (IF ENVISAGED) MUST BE RESET.
- PRESSING THE  BUTTON DURING THE VACUUM CREATION PHASE OR GAS FLUSHING WILL CAUSE THESE FUNCTIONS TO BE INTERRUPTED AND THE APPLIANCE WILL PROCEED WITH THE NEXT PHASE PROGRAMMED.
- IF THE LID OPENS DURING THE GAS FLUSHING CYCLE, REDUCE THE GAS FLUSHING TIME.
- THE MACHINE IS CALIBRATED FOR A STANDARD SEALING TIME; IF A NUMBER OF SEALING OPERATIONS ARE PERFORMED CONTINUOUSLY, THE SEALING BARS WILL GET HEATED. IT IS THEREFORE ADVISABLE TO REDUCE THE TIME.
- FOR A CORRECT CHOICE OF THE GAS MIXTURE TO BE USED DEPENDING ON THE FOODS TO BE PRESERVED, REFER TO THE LEAFLETS DISTRIBUTED BY THE GAS PRODUCERS.
- USE OF GAS MIXTURES CONTAINING OXYGEN OR OTHER EXPLOSIVE GASES IS PROHIBITED.
- TAKE GREAT CARE TO PREVENT SUCTION OF LIQUIDS BY THE MACHINE; USE THE MACHINE FOR PACKAGING LIQUID PRODUCTS OR PRODUCTS WITH HIGH MOISTURE CONTENT ONLY AFTER ACQUIRING THE NECESSARY EXPERIENCE BY FOLLOWING THE INSTRUCTIONS GIVEN IN THIS MANUAL.

7. MAINTENANCE

7.1 GENERAL WARNINGS

ELECTRIC HAZARD!
Maintenance and/or repair operations on any of the appliance components must be done only after disconnecting the power supplies (Disconnecting the plug from the mains).

ATTENTION!
Only qualified personnel must be allowed to carry out maintenance operations or access powered parts of the machine.

ELECTRIC HAZARD!
Disconnect the electric current before carrying out cleaning or maintenance.

For repairs, if necessary, contact a Service Centre authorized by the manufacturer. Use and demand genuine spare parts.

7.2 PROGRAMMED MAINTENANCE

FREQUENCY	MACHINE PART	ACTION
Before each start up	Pump	Check the oil colour and level; top up the level, or change it completely if the colour is dark or whitish.
	Power cable	Check to make sure it is intact, replace if damaged (Contact a specialist Service Centre).
	Plexiglas cover	Check to make sure it is intact; if cracks or streaks are present, contact Customer service for replacement.
	Red silicone and Plexiglas cover gasket	Check to make sure they are inserted properly in their seats; replace if damaged.
	Machine and vacuum chamber	Clean to remove impurities, oil and grease.
Weekly	Sealing bar connection wire	Check to make sure it is connected.
	Sealing bar	Clean the upper part with a damp cloth.
Every 15,000 operating cycles (about 100 hours of service)	Pump	Run the pump for about 30 minutes (using the Pump or Jars function) to allow removal of water from the pump oil.
	Appliance with 4 - 8 - 12 m ³ /h pumps	Change the pump oil (call a specialist Service Centre).
Every 25,000 operating cycles (about 200 hours of service)	Appliance with 18 - 25 - 40 - 60 - 100 m ³ /h pumps	Change the pump oil (call a specialist Service Centre).
Every two oil changes	Pump	Change the pump exhaust filter (A) (call a specialist Service Centre).
Every 1000 hours of service	40 - 60 - 100 mc/h pumps	Change the oil filter (call a specialist Service Centre).
Every 6 months	Pump	Change the pump oil. (call a specialist Service Centre).

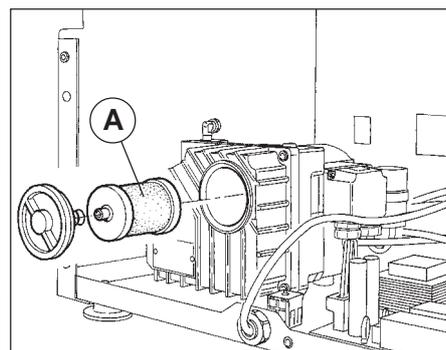
7.3 CARE AND CLEANING OF THE VACUUM PACKAGING MACHINE

ELECTRIC HAZARD!
Danger of electric shock ! Remove the machine plug from the power socket. Do not use water or steam jets.

DANGER! Danger of burns: if alcohol-based or inflammable disinfectant products are used, ventilate the area. Do not use naked flames near the machine! Do not smoke!

ATTENTION! Danger of injury! Use personal protective equipment. Do not use caustic products, acids or aggressive products such as muriatic acid. Read the instructions on the detergent product or disinfectant pack carefully.

WARNINGS! Use alcohol-based disinfectants.
The machine must be cleaned and disinfected every time after use.



GB

7.3.1 CLEANING THE PLEXIGLAS COVER

- Wipe using a cloth soaked in potable water or a detergent specially meant for Plexiglas (maximum temperature 40°C).
- Do not use other types of detergents.
- Dry the cover thoroughly.

7.3.2 CLEANING THE SEALING BARS



ATTENTION!

Do not start cleaning operations with the sealing bars hot, as there is danger of burns.

- Clean the upper part of the sealing bar using a clean cloth soaked in potable water.

7.3.3 CLEANING THE VACUUM CHAMBER

- 1) Switch the machine off by means of the ON/OFF main switch and disconnect the plug from the mains socket.
- 2) Disconnect the two sealing bar connection wires (A - Fig. 1).
- 3) Remove the sealing bar together with the connection wires (Fig. 2).
- 4) Hold the sealbag and pull it upwards (B - Fig. 3).
- 5) Insert the safety cap (C) in the central opening as shown in (Fig. 4).
- 6) Using a cloth soaked in a detergent and/or disinfectant solution, clean the bottom and sides of the vacuum chamber (Fig. 5); after cleaning, refit the parts by repeating the above operations in reverse order.

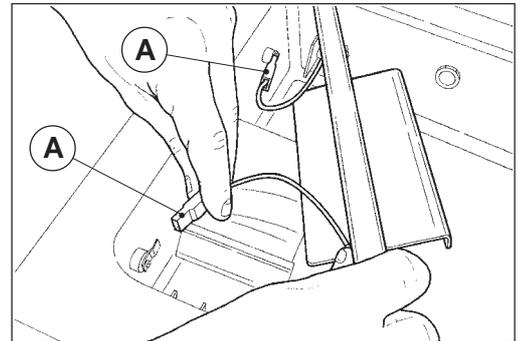


Fig. 1

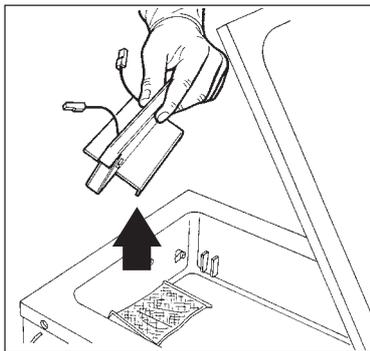


Fig. 2

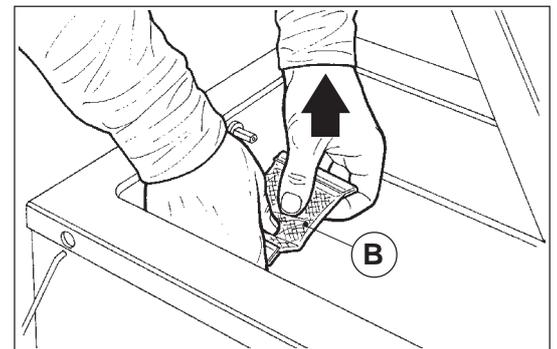


Fig. 3

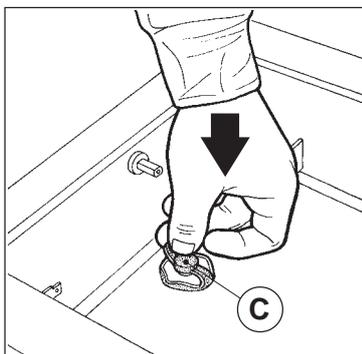


Fig. 4

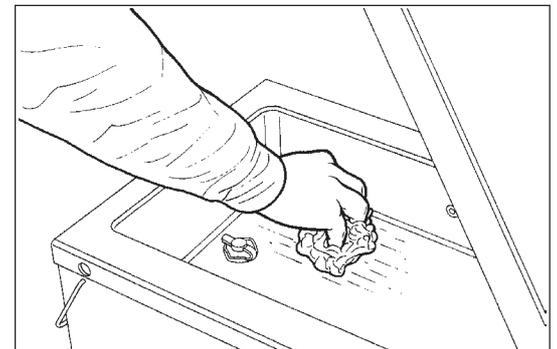


Fig. 5

7.3.4 DISINFECTING THE MACHINE

- Switch the machine off by means of the ON/OFF main switch and disconnect the plug from the mains socket.
- Spray the machine's stainless steel surface with an alcohol-based disinfectant. Do not spray on the electrical parts or in the machine's air vents.
- Leave the disinfectant to act for a few minutes.
- Wipe with a cloth soaked in potable water, then dry thoroughly with a clean cloth.

7.4 ROUTINE MAINTENANCE

7.4.1 REPLACING THE SEALING BAR COVER TEFLON BAND

After a long period of use, a black mark starts appearing on the sealing bar cover Teflon band, so it must be replaced.

To do so, proceed as follows:

- 1) Remove sealing bar (A) from its seat by releasing the two connection wires (B) (Fig. 1).
- 2) Detach the brown Teflon cover (C) (Fig. 2).
- 3) Wipe the sealing bar with alcohol (Fig. 3).
- 4) Fit a new band (Fig. 4), cutting the excess length at the two ends (Fig. 5).
- 5) Refit the bar in guide (D - Fig. 6) and reconnect the connection wires (Fig. 7).

ATTENTION! Do not start Teflon band replacement with the sealing bars hot, as there is danger of burns.

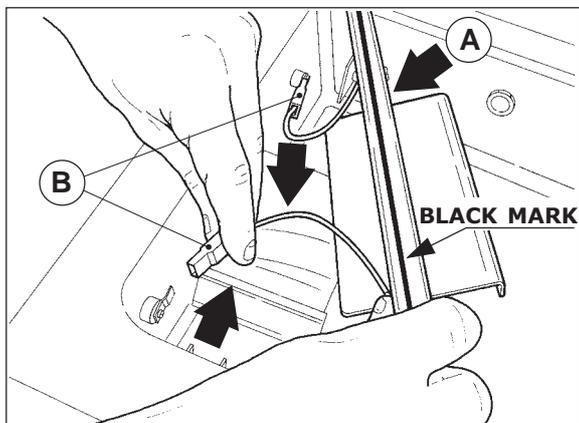


Fig. 1

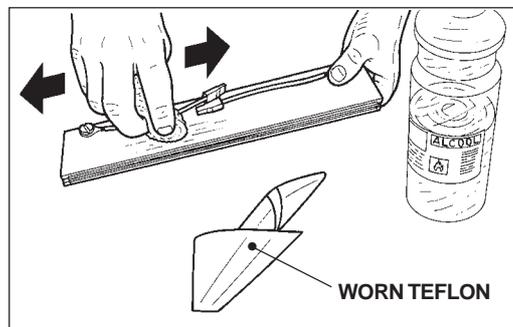


Fig. 3

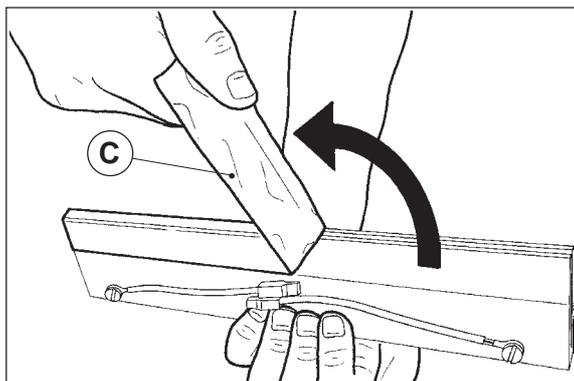


Fig. 2

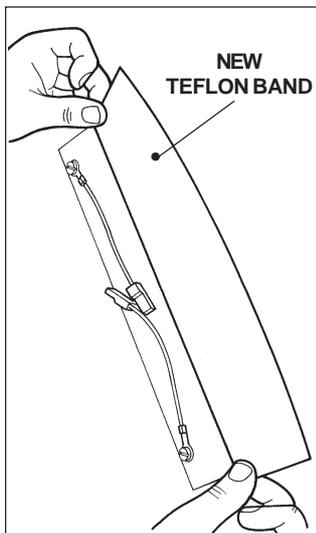


Fig. 4

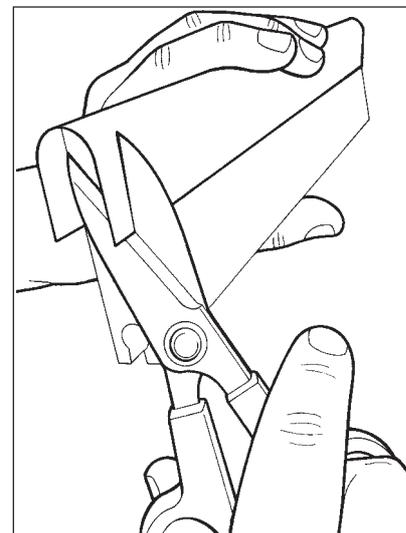


Fig. 5

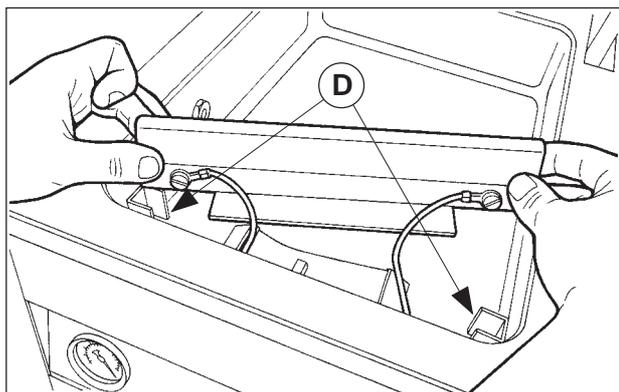


Fig. 6

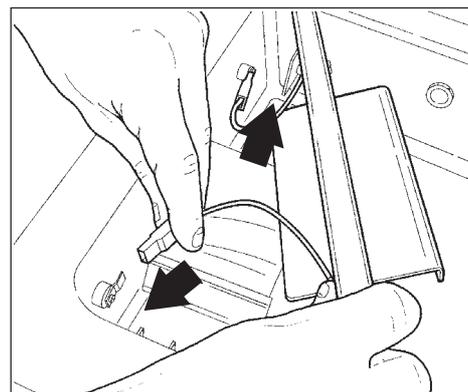


Fig. 7

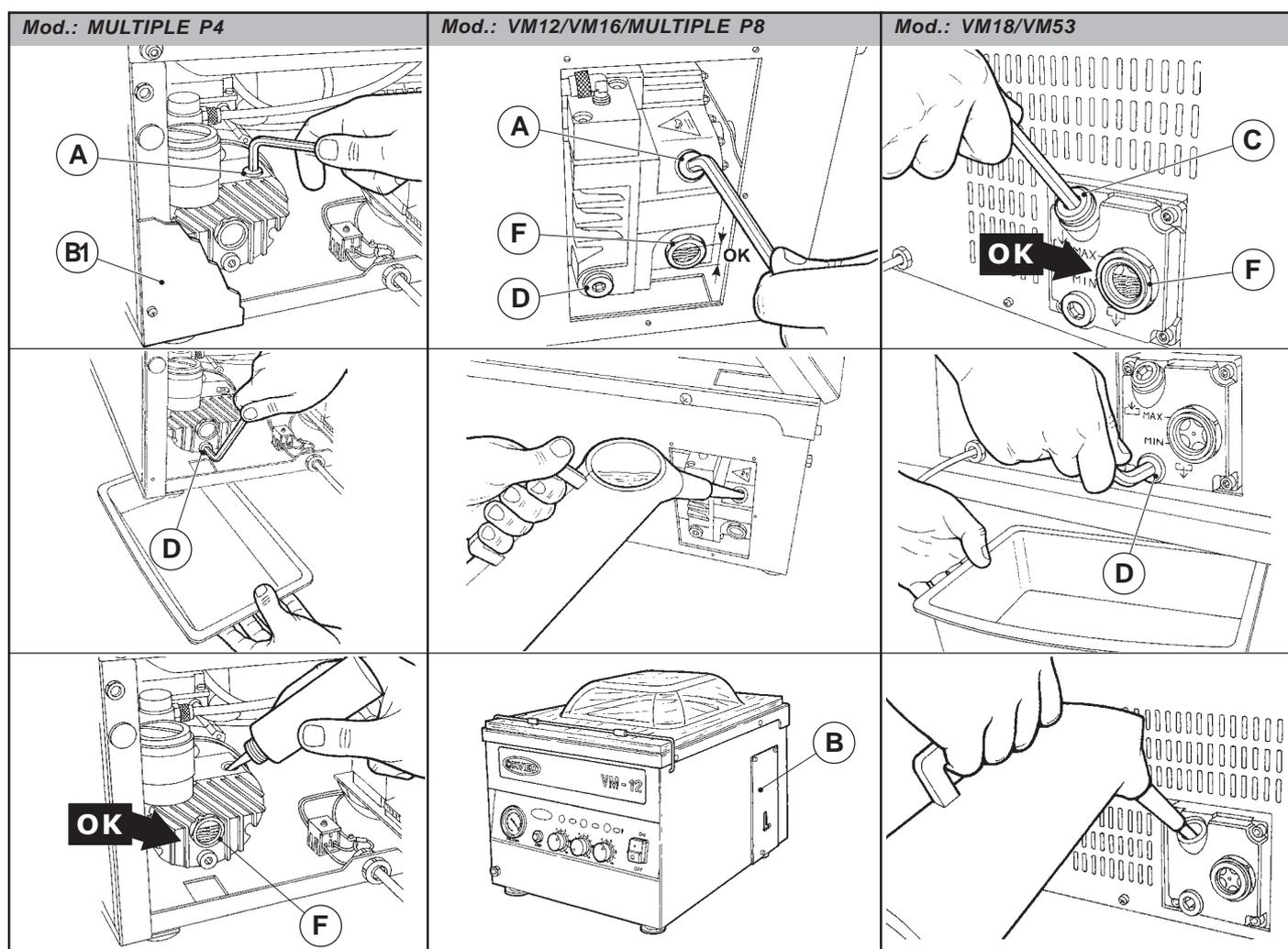
7.4.2 CHANGING THE PUMP OIL

WARNING: This operation must be carried out by qualified personnel.

For changing the oil, use exclusively Orved40/60/100 type original oil, in the quantity indicated in the Table below (for the order codes, see the Spare parts Table on pages 173-176). This oil is specially meant for use in vacuum pumps in the food packaging sector: it has high anti-emulsion power with water, a factor which influences the pump efficiency and life to a considerable extent.

- 1) Run the pump for about 10 minutes so that the oil becomes fluid, by activating the Pump or Jars function.
- 2) Stop the pump by pressing STOP or deactivating the Pump function.
- 3) Switch off the machine using the ON/OFF main switch and remove the plug from the power socket.
- 4) Unscrew the oil filling screw (A) as follows:
 - Models VM12 - VM16 e MULTIPLE 315 P4/P8: remove the stainless steel side (B) or rear panel (B1), then unscrew screw (A) using a hex wrench;
 - Other models: screw (C) is accessible from the outside; unscrew using a hex wrench.
- 5) Use a container to hold the oil drained out and unscrew oil drain screw (D) provided at the bottom of the pump. Let the oil flow out into the container for about 10 minutes.
- 6) Refit the oil drain screw (D) and fill with the type of oil indicated in the "TECHNICAL DATA" table to a level slightly above half-way on the level indicator on the pump (F).

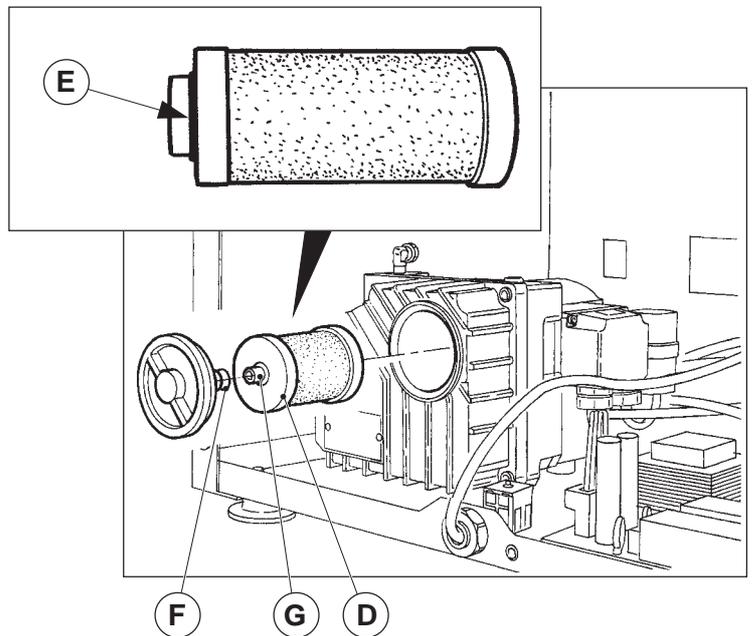
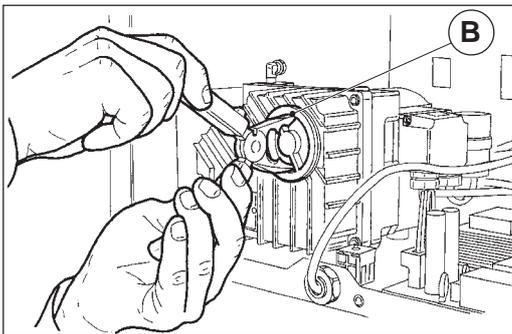
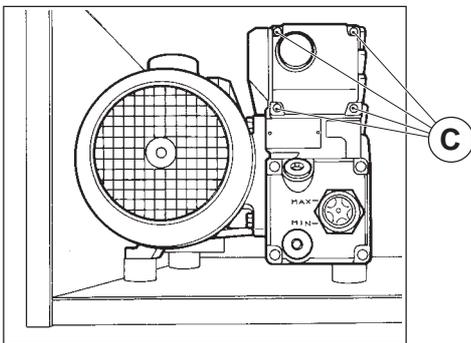
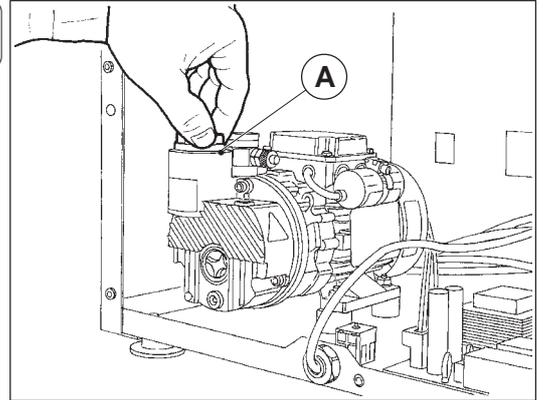
DATI TECNICI - TECHNICAL DATA - DONNÉES TECHNIQUES - TECHNISCHE DATEN - DATOS TÉCNICOS		MULTIPLE 315 P4	MULTIPLE 315 P8	MULTIPLE 315H P8	VM12	VM10	VM16	VM40N	VM18	VM18H	VM53	VM53H	VM20	VM20 TANDEM	VM19	VM1800	VM30	
TIPO OLIO POMPA PUMP OIL TYPE TYPE D'HUILE POMPE PUMPENÖL TYP TIPO DE ACEITE BOMBA	TIPO TYPE TYPE TYP TIPO	SW40							SW60			SW60 / SW100		SW100				
	CARICA (LT) CAPACITY CAPACITÉ FÜLLMEN- GE CARGA	0,06	0,20	0,20	0,28	0,28	0,28	0,30	1,20			1,20 / 1,50		1,50				



7.4.3 CHANGING THE PUMP EXHAUST FILTER

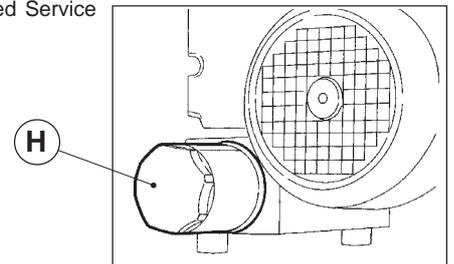
WARNING: This operation must be carried out by qualified personnel.

- 1) Remove the stainless steel panel on the rear of the machine.
- 2) • 4m³/h pumps (MULTIPLE P4): unscrew the filter anticlockwise (A).
- 8, 12,18 and 25 m³/h pumps (MULTIPLE P8, VM12, VM16, VM40N, VM18, VM18H, VM53): unscrew plug (B) on the pump body using pliers.
- 60 and 100 m³/h pumps (VM53H version with 60 m³/h pump, VM19, VM1800, VM20, VM30, VM20 Tandem): unscrew the four screws (C) on the filter cover.
- 3) Remove filter (D) from its seat.
- 4) Insert the new filter after checking to make sure 'O-ring (E) is in the correct position.
- 5) Refit the cover by fixing spring (F) on the filter projection (G).



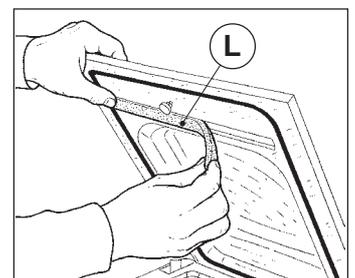
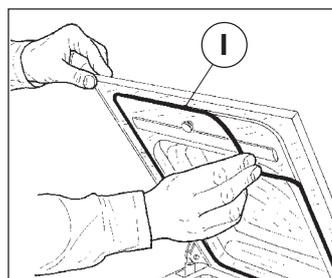
7.4.4 CHANGING THE OIL FILTER - MOD. VM53H with 60mc/h pump - VM19 - VM1800 - VM20 - VM30

Oil filter (H) must be changed every 1000 hours of service. For replacement, contact an Authorized Service Centre.



7.4.5 CHANGING THE LID GASKET AND RED SILICONE

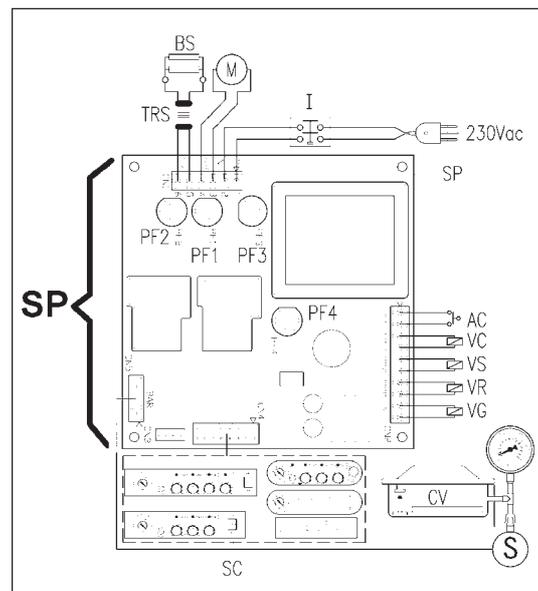
- 1) Open the plexiglas cover.
- 2) Remove cover gasket (I) or the red silicone strip (L) and clean the seats to remove dirt.
- 3) Insert the new gasket pushing it deep into the cavity all the way.
- 4) Run a loadless cycle so that the gasket fits firmly into its seat.



7.4.6 WIRING DIAGRAMS

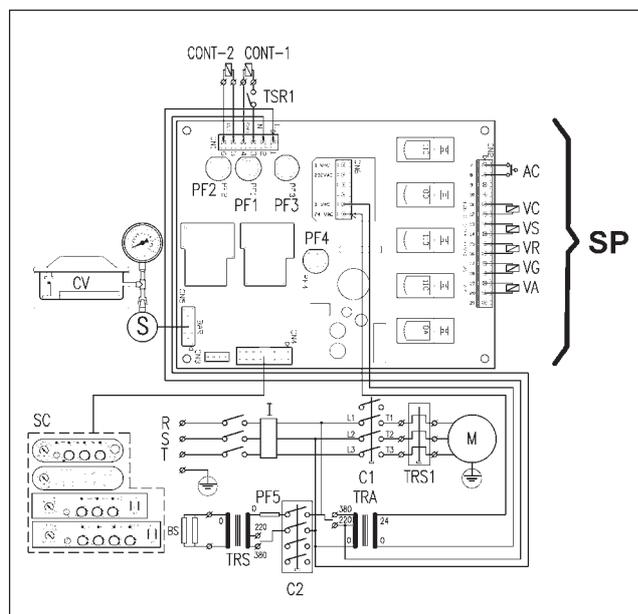
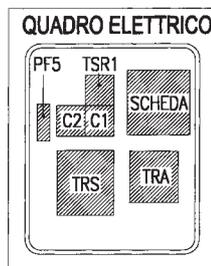
7.4.6.1 SINGLE-PHASE WIRING DIAGRAM
MULTIPLE P4/P8
VM12-VM16-VM18-VM18H-VM40N-VM53-VM53H

- SP Power board
- AC Cycle start
- VC Sealbag valve
- VS Softair function valve
- VR Devacuation valve
- VG Gas flushing valve
- CV Vacuum chamber
- PF1 Pump safety fuse
- PF2 Sealing bar safety fuse
- PF3 Power board safety fuse
- PF4 Power board safety fuse
- S Vacuum sensor
- M Vacuum pump motor
- I Main switch
- SC Controller board
- BS Sealing bar
- TRS Sealing Transformer



7.4.6.2 THREE-PHASE WIRING DIAGRAM
VM18-VM18H-VM53-VM53H-VM19
VM20-VM30-VM1800-VM20 TANDEM

- SP Power board
- AC Cycle start
- VS Softair function valve
- CONT1 Pump remote control switch
- VC Sealbag valve
- B Devacuation valve
- CONT2 Sealing remote control switch
- VG Gas flushing valve
- VA Evacuation valve
- TRA Board transformer
- CV Vacuum chamber
- TSR1 Pump motor thermal cutout switch
- TRS Sealing Transformer
- PF1 Pump safety fuse
- PF4 Power board safety fuse
- PF2 Sealing bar safety fuse
- PF5 Ceramic safety fuse
- SC Electronic controller board
- S Vacuum sensor
- M Vacuum pump
- I Main switch

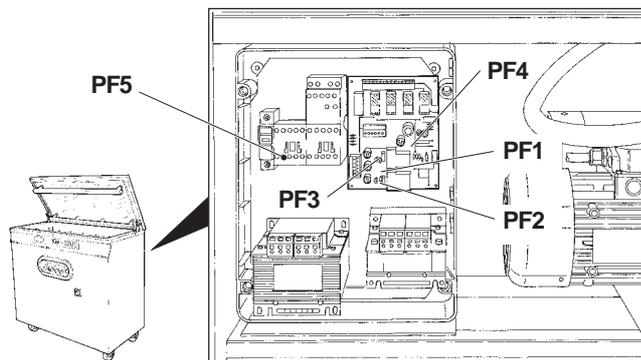
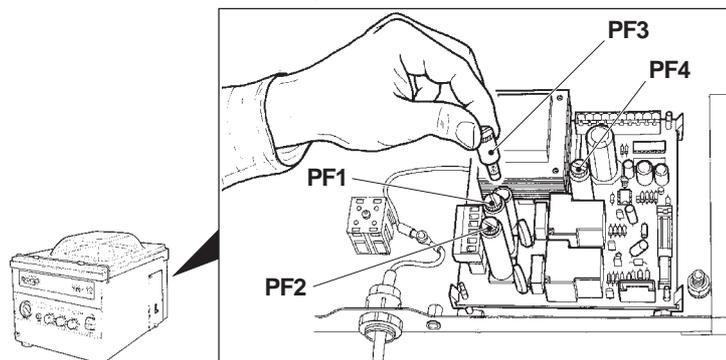


REPLACING FUSES



WARNING: This operation must be performed only by qualified personnel.

- 1) Disconnect the plug from the mains socket.
- 2) Remove the rear panel and remove the fusebox capsule by rotating it anticlockwise through half a turn and replace the burnt fuse with a new fuse having identical features (See Technical Data Table page 42).
- 3) ATTENTION: In three-phase models, the ceramic fuse PF5 is not fixed on the power board but is positioned on the side of the remote control switches inside the electric panel.



7.5 TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	SOLUTION	
		ELECTRO-MECHANICAL VERSION	DIGITAL VERSION
<i>Machine not working</i>	<i>Machine Off</i>	<i>Switch on the machine using the ON/OFF main switch.</i>	
	<i>No power supply</i>	<i>Insert the plug in a socket (check the voltage!). Check power cable to make sure it is intact. Check fuses PF3 and PF4 on the power board to make sure they are intact and inserted correctly.</i>	
	<i>Machine damage</i>	<i>Contact a Service centre.</i>	
<i>Insufficient vacuum in chamber</i>	<i>Time set insufficient</i>	<i>Increase evacuation time using the "VAC" control knob.</i>	<i>Increase evacuation time using the "VAC" key.</i>
	<i>Vacuum pump performance insufficient</i>	<i>Check oil. Check pump exhaust filter.</i>	
	<i>Cover gasket worn.</i>	<i>Replace cover gasket.</i>	
	<i>External containers evacuation valve open in models MULTIPLE - VM12 - VM16.</i>	<i>Close valve.</i>	
<i>Machine does not create vacuum in chamber</i>	<i>Pressure exerted on Plexiglas cover during appliance start up insufficient.</i>	<i>Lower cover with both hands, exerting more pressure.</i>	
	<i>Jars evacuation valve (in models MULTIPLE-VM12-VM16) still open.</i>	<i>Close the valve.</i>	
	<i>For appliance with gas option: gas function active</i>	<i>Deactivate the gas function using the "GAS" control knob.</i>	<i>Deactivate the gas function using the "PROG" and "GAS" keys.</i>
	<i>Pump not working</i>	<i>Change pump fuse PF1 on the power board. (Contact a Service Centre.)</i>	
<i>Plexiglas cover does not close</i>	<i>Cover gasket worn</i>	<i>Change the gasket.</i>	
	<i>Hinges out of alignment</i>	<i>Adjust the cover hinge. (contact a Service Centre).</i>	
<i>Insufficient vacuum in bag/ bag does not maintain vacuum</i>	<i>Bag positioned incorrectly</i>	<i>Place the bag in the centre on the sealing bar projecting by 20 mm beyond it.</i>	
	<i>Bag perforated</i>	<i>Choose a thicker bag and wrap the product with cling film or soft paper.</i>	
	<i>Sealing insufficient</i>	<i>Increase the sealing time using the "SEAL" control knob.</i>	<i>Increase the sealing time using the "SEAL" key.</i>
	<i>Bag defective</i>	<i>Change the bag.</i>	
	<i>Dirty bag open</i>	<i>Use a new bag and avoid smearing the opening with oil, grease, etc.</i>	
	<i>Bag too big or too small in relation to product size.</i>	<i>Choose a bag size suitable for product dimensions.</i>	
<i>Seal seam shows burns and bubbles</i>	<i>Sealing time too long</i>	<i>Decrease the sealing time using the "SEAL" control knob.</i>	<i>Decrease the sealing time using the "SEAL" key.</i>
<i>Narrow irregular sealseam</i>	<i>Sealing time too short</i>	<i>Increase the sealing time using the "SEAL" control knob.</i>	<i>Increase the sealing time using the "SEAL" key.</i>

PROBLEM	POSSIBLE CAUSES	SOLUTION	
		ELECTRO-MECHANICAL VERSION	DIGITAL VERSION
<i>The machine does not seal</i>	<i>Sealing bar connection wires disconnected</i>	<i>Check connections or clean the contacts</i>	
	<i>Sealing Bar wire broken.</i>	<i>Change wire. (Contact a Service Centre)</i>	
	<i>For appliance with gas option: gas quantity more than 70%.</i>	<i>Reduce gas percentage using "GAS" control knob.</i>	<i>Reduce gas percentage using "GAS" key.</i>
	<i>Sealing bar fuse blown.</i>	<i>Change PF2 fuse on power board.</i>	
	<i>Seal bag perforated.</i>	<i>Change seal bag.</i>	
<i>Poor sealing</i>	<i>Sealing bar dirty.</i>	<i>Clean sealing bar.</i>	
	<i>Sealing time insufficient for bag basic weight.</i>	<i>Increase sealing time using "SEAL" control knob.</i>	<i>Increase sealing time using "SEAL" key.</i>
	<i>Teflon cover worn.</i>	<i>Change Teflon cover.</i>	
	<i>Red silicone worn.</i>	<i>Change red silicone.</i>	
<i>Gas quantity in bags insufficient</i>	<i>Gas flushing time insufficient.</i>	<i>Increase gas percentage using "GAS" control knob.</i>	<i>Increase gas percentage using "GAS" key.</i>
	<i>Gas cylinder pressure insufficient.</i>	<i>Adjust pressure on cylinder reducer to 1 bar.</i>	
	<i>Gas nozzle not inserted in bag mouth.</i>	<i>Reposition bag by inserting gas nozzle in the bag mouth.</i>	
	<i>Cylinder valve or pressure reducer closed.</i>	<i>Open cylinder valves and adjust pressure reducer to 1.0 bar.</i>	
<i>Lid opens during GAS cycle.</i>	<i>Gas percentage too high.</i>	<i>Reduce gas percentage using "GAS" control knob.</i>	<i>Reduce gas percentage using "GAS" key.</i>
<i>Vacuum not created in containers</i>	<i>Cover not placed correctly.</i>	<i>Reposition then create vacuum by pressing slightly on the lid.</i>	

8. DISPOSAL OF THE MACHINE AND ITS PARTS



For scrapping the VACUUM PACKAGING MACHINE or its parts, do not dump these in city waste bins: scrapped appliances are not useless wastes!

The machine does not contain components that are hazardous for humans or the environment; it is made of materials that can be recycled completely or disposed off normally.



For scrapping operations, contact specialist, authorized Companies. Before starting dismantling operations, make sure there is enough clearance around the machine to carry out the operations easily.

In any case, make sure, every part of the machine is disposed off in accordance with the legislation applicable in the country of use.

8.1 DISPOSING PNEUMATIC SPRINGS



DANGER! *Danger of serious injury: the pneumatic springs are loaded at about 180 bar, therefore they must not be cut or damaged as they can burst throwing off splinters.
The disposal of these parts must be done exclusively by qualified personnel.*

9. SPARE PARTS: GENERAL WARNINGS

For ordering spare parts, always indicate the following data:

- MACHINE SERIAL NUMBER (see CE plate on the back of the machine)
- SPARE PART CODE (see Table)

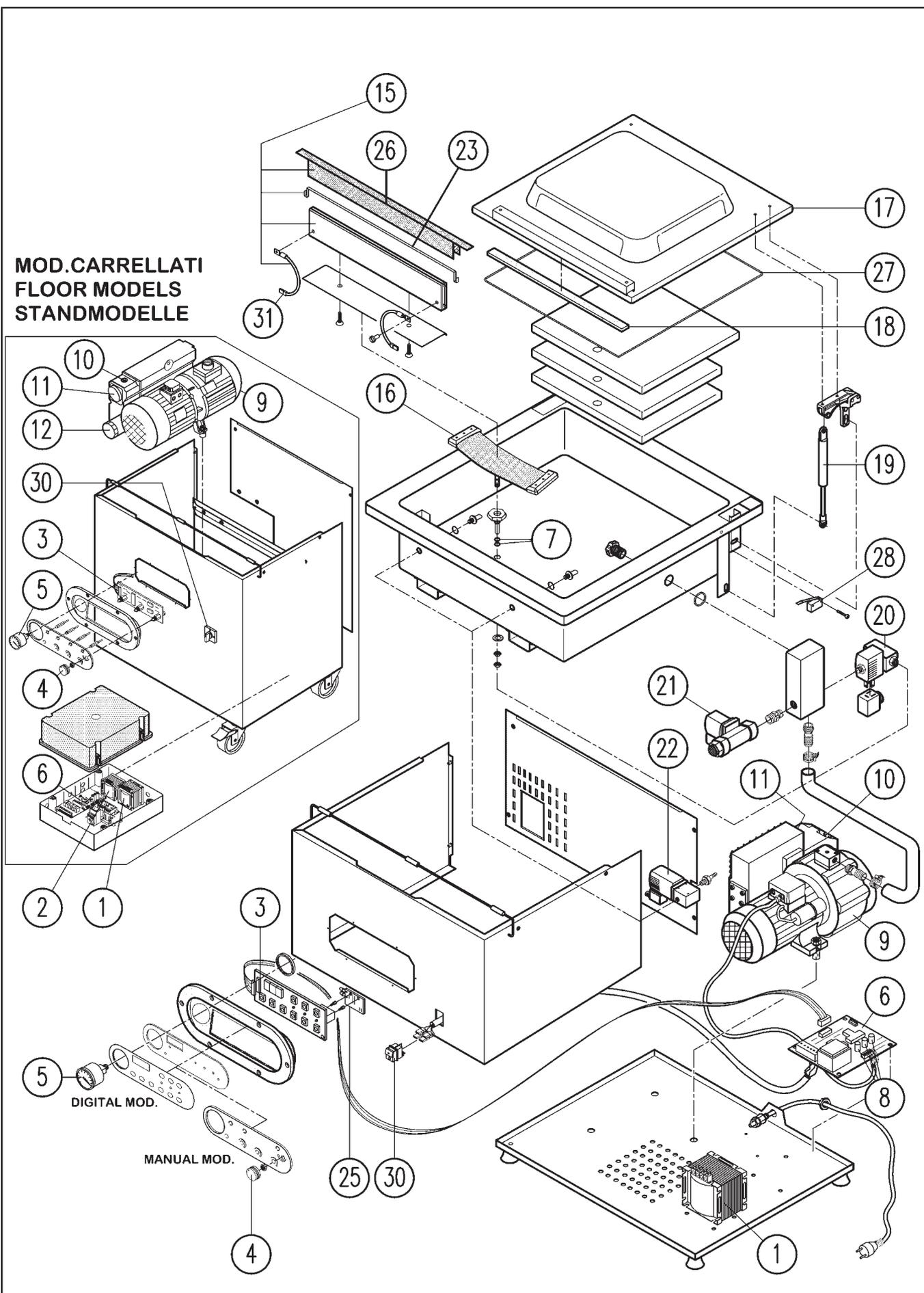
10. THE MANUFACTURER

Thank you for your trust.

The manufacturer reserves the right to make technical and/or aesthetic modifications to our products at any moment, without any prior notice.

11. RICAMBI PRINCIPALI / MAIN SPARE PARTS / PIÈCES DE RECHANGE PRINCIPAUX / HAUPTERASTZTEILE
PIEZAS DE REPUESTO PRINCIPALES

MOD. CARRELLATI
FLOOR MODELS
STANDMODELLE



MULTIPLE 315 P4 - 315 P8 - 315H P8 / VM12 / VM10 / VM16 / VM18

NR.	RICAMBIO-Spare Part-Pièce de Rechange-Ersatzteil-Repuesto	MULTIPLE 315 P4	MULTIPLE 315 P8	MULTIPLE 315H P8	VM12	VM10	VM16	VM18		
1	Trasformatore saldatura Sealing transformer Transformateur de soudure Schweisstrafo Transformador de sellado (A)	1400269	1400269	1400269	1B:1400269 2B:1400269 1B DS:1400269 2B DS:1400269	1B:1400269 2B:1400269 1B DS:1400269 2B DS:1400269	1B:1400269 2B:1400269 1B DS:1400269 2B DS:1400269	1B:1400372 2B:1400372 1B DS:1400500 2B DS:1400368		
2	Trasformatore di alimentazione Control transformer Transformateur de commande Steuertrafo Transformador de sellado	/	/	/	/	/	/	/		
3	Tastiera comandi Command board Piloteage électronique Bedienungselektronik Panel de control	Elettromec./electromec.3 pot. Elettromec./electromec.2 pot. Digitale/digital	/	/	/	1400225 1400395	1400225 1400395	1400225 1400395		
	Manopola Control knob Bouton Drehknopf Perilla de control		/	/	/	1300226	1300226	1300226		
5	Vuotometro Vacuum gauge Vacuumètre Vakuometer Vacuómetro		1100165	1100165	1100165	1100165	1100165	1100165		
6	Scheda elettronica potenza Power board Platine de puissance Steuerung Panel principal	230V - 50Hz 400V- 3ph 115V - 60Hz	1400216 /	1400216 /	1400216 /	1400216 /	1400216 /	1400216 /		
	Anello OR Viton per raccordo Viton O-ring for coupling nozzle Joint O Viton pour raccord O-Ring für Anschluss O-ring para conector		1300828	1300828	1300828	1300828	1300828	1300828		
8	Fusibile Fuse Fusible Sicherung Fusible PF1=Pompa/pump PF2=Saldatura/Seal PF3=Linea/Comm. board PF4=Tra.scheda/Transf. PF5=Trif.sald./3Ph.seal	PF1 230V-1Ph 400V 3Ph	1400113	1400118	1400118	1400118	1400118	1400119	1400120	
		PF2 230V-1Ph-1B 230V-1Ph-2B	1400113	1400113	1400113	1400113	1400113	1400113	1400113	1400113
		(B) 230V-1Ph-1B DS/TB 230V-1Ph-2B DS/TB	/	/	/	1400117	1400117	1400117	1400117	1400117
		PF3 230V-1Ph / 400V 3Ph	1400112	1400112	1400112	1400112	1400112	1400112	1400112	
		PF4 230V-1Ph / 400V 3Ph	1400312	1400312	1400312	1400312	1400312	1400312	1400312	
		400V 3Ph-1B 400V 3Ph-2B	/	/	/	/	/	/	/	
		PF5 400V 3Ph-1B DS/TB 400V 3Ph-2B DS/TB	/	/	/	/	/	/	/	
		(B) 400V 3Ph-BL 115V / 1Ph	1400117	1400362	1400362	1400362	1400542	1400542	1400374	
		PF2 115V / 1Ph	1400117	1400117	1400117	1400117	1400117	1400117	1400117/312	
		230V - 50Hz 115V - 60Hz	1201402 1201833	1201405 1201406	1201405 1201406	1201405 1201406	1201405 1201409	1201408 1201409	1201412 1201499	
9	Pompa vuoto Vacuum pump Pompe à vide Vakuumpumpe Bomba de vacío	230V - 50Hz 115V - 60Hz 400V - 3Ph.	1201402 1201833	1201405 1201406	1201405 1201406	1201405 1201409	1201408 1201409	1201412 1201499		
10	Olio pompa Pump Oil Huile pompe Pumpenöl Aceite bomba	1 LT(ORVED40) 2LT(ORVED60) 3LT(ORVED100) 10LT(ORVED40-60-100)	1600500 /	1600500 /	1600500 /	1600500 /	1600500 /	/		
	1601037	1601037	1601037	1601037	1601037	1601037	1601037	1601038		
11	Filtro disoleatore pompa Pump Exhaust filter Filtre à air pompe Luftentoelement Filtro de Aire		1300637	1300634	1300634	1300634	1300634	1301102		
12	Filtro olio pompa Pump oil filter Filtre huile pompe Pumpenölfilter Filtro de Aceite bomba		/	/	/	/	/	/		
13	Kit Minor per Pompa vuoto Minor Kit for Vacuum pump Kit minor pour Pompe à vide Minor-Kit für Vakuumpumpe Kit minor para Bomba de vacío		1601009	1601010	1601010	1601010	1600523	1600521		
14	Kit Major per Pompa vuoto Major Kit for Vacuum pump Kit major pour Pompe à vide Major-Kit für Vakuumpumpe Kit major para Bomba de vacío		1600847	1600832	1600832	1600832	1600524	1600522		
15	Barra saldante, completa Sealing bar, complete Barre de soudure, complète Schweißleiste, komplett Barra de sellado, completa (C)		1600635	1600635	1600635	1600637	1600638	1B: 1600831 4B: 1600624 DS:1600846 TB:1601028		
16	Cuscinetto sottobarra con raccordo Sealbag with coupling nozzle Sac de soudure avec raccord Schweißsack mit Anschluss Bolsa de soldadura con conector		1600949 R01	1600949 R01	1600949 R01	1600948R01	1600949R01	1600949R01		
17	Coperchio Plexiglas PMMA Cover Couvercle Plexiglas Plexiglasdeckel Tapa PMMA (D)	T= TRASP./TRANSPARENT A=AZZURRO/BLUE/BLEU BLAU/AZUL	A:1300447 T:1300448	A:1300447 T:1300448	A:1300449 T:1300450	1300454R01 1B-A:1301012 1B-T:1301062 2B-A:	1B-A:1300980 2B-A:1300979	1B-A:1300457 1B-T:1300455 2B-A:1300458 2B-T:1300456		

MULTIPLE 315 P4 - 315 P8 - 315H P8 / VM12 / VM10 / VM16 / VM18

NR.	RICAMBIO Spare Part Pièce de Rechange Ersatzteil Repuesto	MULTIPLE 315 P4	MULTIPLE 315 P8	MULTIPLE 315H P8	VM12	VM10	VM16	VM18
18	Guarnizione coperchio (prezzo al mt) Cover seal (Meter goods) Joint couvercle (marchandise de mètre) Deckeldichtung (Meterware) Burlete tapa (Mercancías del metro)	1300023	1300023	1300023	1300023	1300023	1300023	1300024
19	Molla a gas per coperchio Cover gas pressure spring Vérin à gaz pour couvercle Gasdruckfeder Deckel Resorte de presión tapa	1201154	1201154	1201154	1201154	1201151	1201151	1201156
20	Elettrovalvola cuscinetto Sealbag Solenoid valve Electrovanne pour sac de soudure Schweißsack-Magnetventil Electroválvula para bolsa de soldadura	1100007	1100007	1100007	1100007	1100007	1100007	1B:1100007 2B:1100006
21	Elettrovalvola rientro aria Devacumate solenoid valve Electrovanne de décompression Belüftungs-Magnetventil Electroválvula de descompresión	1100008	1100008	1100008	1100008	1100010	1100010	1100009
22	Elettrovalvola gas Gasflush solenoid valve Electrovanne de injection gaz Begasungs-Magnetventil Electroválvula de inyección gas	1100013	1100013	1100013	1100013	1100013	1100013	1100013
23	Resistenza saldatura (al mt) Sealing wire (Meter goods) Standard	1601029	1601029	1601029	1601029	1601029	1601029	1601029
	Fil de soudure(march.de m.) Schweißdraht (Meterware) Doppia/Double/Doppel/Dobl. Resistencia (Merc. del m.)	/	/	/	1601030	1601030	1601030	1601030
24	Filo per Tagliobusta (al mt) Cutting wire (Meter goods) Fil de coupe (marchandise de mètre) Trenndraht (Meterware) Resistencia (Mercancías del metro)	/	/	/	1400359	1400359	1400359	1400359
25	Scheda sensore vuoto (solo per versioni digitali) Vacuum sensor board (only digital Models) Platine avec Capteur de vide (pour modèles digitales) Vakuum-Druckfühler (für digital-Modelle) Panel con sensor de vacío (para modelos digital)	1400229	1400229	1400229	1400229	1400229	1400229	1400229
26	Teflon di copertura (al mt) Teflon band (Meter goods) Bande téflon (Marchandise de mètre) Teflonband (Meterware) Banda de téflon (Mercancías del metro)	1300001	1300001	1300001	1300001	1300001	1300001	1300001
27	Profilo di silicone Silicone rubber Gomme de silicone Silikongummi Perfil de silicón	1300152	1300152	1300152	1300151	1300152	1300152	1300153 4B:1300163
28	Contatto Switch Switch contact Contacteur Switch Switch-kontakt Contacto Switch	1400203	1400203	1400203	1400203	1400203	1400203	1400203
29	Tubo Riisan Ø8x6 (al mt) Ø8x6 Riisan hose (Meter goods) Tuyau Riisan Ø8x6 (Marchandise de mètre) Ø8x6 – Riisan-Schlauch (Meterware) Manguera Riisan Ø8x6 (Mercancías del metro)	1300717	1300717	1300717	1300717	1300717	1300717	1300717
30	Interruttore generale Main Switch 230V – 50Hz	1400067	1400067	1400067	1400067	1400067	1400067	1400067
	Interrupteur principal Hauptschalter 400V- 3ph Switch principal	/	/	/	/	/	/	/
31	Cavetto collegamento barra saldante Sealing bar connection wire Cable de connection barre de soudure Verbindungskabel für Schweißleiste Cable de conexión barra de sellado	1400055	1400055	1400055	1400055	1400055	1400055	1400055 DS/TB:1400054

(A): 1B= 1 BARRA SALDANTE STANDARD / 1 STANDARD SEALING PAD / 1 BARRE DE SOUDURE STANDARD / 1 STANDARD SCHWEISSLEISTE / 1 BARRA SOLDADORA STANDARD
 2B= 2 BARRE SALDANTI STANDARD / 2 STANDARD SEALING PADS / 2 BARRES DE SOUDURE STANDARD / 2 STANDARD SCHWEISSLEISTEN / 2 BARRAS SOLDADORAS STANDARD
 2BL= 2 BARRE SALDANTI LUNGHE / 2 LONG SEALING PADS / 2 BARRES DE SOUDURE LONGES / 2 LANGE SCHWEISSLEISTEN / 2 BARRAS SOLDADORAS LONGO
 2BC= 2 BARRE SALDANTI CORTE / 2 SHORT SEALING PADS / 2 BARRES DE SOUDURE COURTES / 2 KURZE SCHWEISSLEISTEN / 2 BARRAS SOLDADORAS CORTAS
 BL= 2 BARRE A "L" / 2 "L"-SEALING PADS / 2 BARRES DE SOUDURE A "L" / 2 "L"-SCHWEISSLEISTEN / 2 BARRAS SOLDADORAS A "L"
 (B): DS=DOPPIA SALDATURA / DOUBLE SEALING / DOUBLE SOUDURE / DOPPELSCHWEISSNAHT / DOBLE SOLDADORA
 TB=TAGLIOBUSTA / CUT OFF SEAL / COUPE DE SAC / TRENNSCHWEISSUNG / CORTE DE BOLSA
 4B= 4 BARRE SALDANTI / 4 SEALING PADS / 4 BARRES DE SOUDURE / 4 SCHWEISSLEISTEN / 4 BARRAS SOLDADORAS
 (C): L-L1= BARRA A "L" LUNGA / LONG "L"-SEALING PAD / BARRES DE SOUDURE "L" LONGE / LANGE "L"-SCHWEISSLEISTE / BARRA SOLDADORA "L" LONGA
 L-L2= BARRA A "L" CORTA / SHORT "L"-SEALING PAD / BARRES DE SOUDURE "L" COURTE / KURZE "L"-SCHWEISSLEISTE / BARRA SOLDADORA "L" CORTA
 (D): A=AZZURRO / BLUE / BLEU / AZUL; T=TRASPARENTE / TRANSPARENT / TRANSPARENTE; 1B/2B= 1-2 BARRE SALD / 1-2 SEALING PADS / 1-2 BARRES DE SOUDURE / 1-2 SCHWEISSLEISTEN / 1-2 BARRAS SOLDADORAS; L=BARRE A "L" / "L"-SEALING PADS / BARRES DE SOUDURE "L" / "L"-SCHWEISSLEISTEN / BARRAS SOLDADORAS "L"

VM18H / VM53 / VM53H / VM20 / VM19 / VM1800 / VM20 TANDEM / VM30

NR.	RICAMBIO-Spare Part-Pièce de Rechange-Ersatzteil-Repuesto	VM18H	VM53	VM53H	VM20	VM19	VM1800	VM20 TANDEM	VM30
1	Trasformatore saldatura Sealing transformer Transformateur de soudure Schweisstrafo Transformador de sellado (A)	1B:1400372 2B:1400372 1B DS:1400500 2B DS:1400368	1BC:1400372 2BC:1400500 2BL:1400500 1BC DS:1400372 2BC DS:1400368 2BL DS:1400368	1BC:1400372 2BC:1400500 2BL:1400500 1BC DS:1400372 2BC DS:1400368 2BL DS:1400368	1BL:1400500 2BL:1400500 2BC:1400500 1BL DS:1400368 2BL DS:1400368 2BL DS:1400368	1BL:1400371 2BL:1400371 2BC:1400500 BL:1400371 1BL DS:1400370 2BL DS:1400367 BL DS:1400369	1BL:1400371 2BL:1400371 2BC:1400500 BL:1400371 1BL DS:1400370 2BL DS:1400367 BL DS:1400369	2BL:1400500 4BL:1400500 4BC:1400500 2BL DS:1400368 4BL DS:1400368 4BC DS:1400368 4BL DS:1400368	1BL:1400371 2BL:1400370 2BC:1400500 BL:1400370 1BL DS:1400370 2BL DS:1400367 BL DS:1400369
2	Trasformatore di alimentazione Control transformer Transformateur de commande Steuertrafo Transformador de sellado	400V: 1400270	400V: 1400270	400V: 1400270	1400270	1400270	1400270	1400270	1400270
3	Tastiera comandi Command board Piloteage électronique Bedienungselektronik Panel de control	Electromec./electromec. 3 pot. 1400225 Electromec./electromec. 2 pot. 1400395 Digitale/digital 1400224	1400225 1400395 1400224	1400225 1400395 1400224	1400225 1400395 1400224	1400225 1400395 1400224	1400225 1400395 1400224	1400225 1400395 1400224	1400225 1400395 1400224
4	Manopola Control knob Bouton Drehknopf Perilla de control	1300226	1300226	1300226	1300226	1300226	1300226	1300226	1300226
5	Vuotometro Vacuum gauge Vacuümètre Vakuumeter Vacuómetro	1100165	1100165	1100165	1100165	1100165	1100165	1100165	1100165
6	Scheda elettronica potenza Power board Platine de puissance Steuerung Panel principal	230V - 50Hz 1400216 400V- 3ph /	1400216 /	1400216 1400232	1400232	1400232	1400232	1400232	1400232
7	Anello OR Viton per raccordo Viton O-ring for coupling nozzle Joint O Viton pour raccord O-Ring für Anschluss O-ring para conector	1300828	1300828	1300828	1300828	1300828	1300828	1300828	1300828
8	Fusibile Fuse Fusible Sicherung Fusible PF1=Pompa/pump PF2=Saldatura/Seal PF3=Linea/Comm. board PF4=Tra.scheda/Transf. PF5=Trif.sald./3Ph.seal (B)	PF1 230V-1Ph 400V 3Ph 1400113 1400117/4B-119 1400117 1400118 1400112 1400312 400V 3Ph-1B 400V 3Ph-2B PF5 400V 3Ph-1B DS/TB 400V 3Ph-2B DS/TB 400V 3Ph-BL PF1 115V / 1Ph PF2 115V / 1Ph	1400120 /	1400120 1BC:1400117 1400118 1400120 1400120 1400121 1400121 1400124 1400124 /	1400120 1BC:1400117 1400118 1400120 1400120 1400121 1400121 1400124 1400124 /	1400112 /	1400112 /	1400112 /	1400112 /
9	Pompa vuoto Vacuum pump Pompe à vide Vakuumpumpe Bomba de vacío 1 LT.(ORVED40) 2LT.(ORVED60) 3LT.(ORVED100) 10LT.(ORVED40-60-100)	230V - 50Hz 115V - 60Hz 400V - 3Ph. 1201425	1201412 1201412 1201499 1201425	1201412 1201412 1201499 25:1201425 60:1201416	1201416	1201416	1201416	60:1201416 100:1201418	1201418
10	Filtro disoleatore pompa Pump Exhaust filter Filtre à air pompe Luftentoelement Filtro de Aire Filtro olio pompa Pump oil filter Filtre huile pompe Pumpenoelfilter Filtro de Aceite bomba	1600504 1601038	1600504 1601038	1600504 1601038	1600504 1601038	1600504 1601038	1600504 1601038	1600504 100:1600509 1601038 100:1601039	1600504 1601038
11	Filtro olio pompa Pump oil filter Filtre huile pompe Pumpenoelfilter Filtro de Aceite bomba	1301102	1301102	25:1301102 60:1300644	1300644	1300644	1300644	60:1300644 100:1300645	1300645
12	Kit Minor per Pompa vuoto Minor Kit for Vacuum pump Kit minor pour Pompe à vide Minor-Kit für Vakuumpumpe Kit minor para Bomba de vacío Kit Major per Pompa vuoto Major Kit for Vacuum pump Kit major pour Pompe à vide Major-Kit für Vakuumpumpe Kit major para Bomba de vacío	1600521	1600521	25:1600521 60:1601011	1601011	1601011	1601011	60:1601011 100:1601012	1601012
13	Kit Minor per Pompa vuoto Minor Kit for Vacuum pump Kit minor pour Pompe à vide Minor-Kit für Vakuumpumpe Kit minor para Bomba de vacío Kit Major per Pompa vuoto Major Kit for Vacuum pump Kit major pour Pompe à vide Major-Kit für Vakuumpumpe Kit major para Bomba de vacío	1600522	1600522	25:1600522 60:1601048	1601048	1601048	1601048	60:1601048 100:1601013	1601013
14	Barra saldante, completa Sealing bar, complete Barre de soudure, complète Schweißleiste, komplett Barra de sellado, completa (C)	1B: 1600831 4B: 1600624 DS:1600846 TB:1601028	BC DS:1600732 BC TB:1600756 BC: 1600620 BL DS:1600733 BL TB:1600757 BL: 1600621	BC DS:1600732 BC TB:1600756 BC: 1600620 BL DS:1600733 BL TB:1600757 BL: 1600621	BC DS:1600751 BC TB:1600766 BC:1600630 BL DS:1601020 BL TB:1601022 BL:1600973	BC DS:1600739 BC TB:1600763 BC:1600627 BL DS:1600749 BL TB:1600764 BL:1600628 L-L1:1600629 L-L2 DS:1600730 L-L2 TB:1600754	BC TB:1601027 BC:1601026 BL DS:1601021 BL TB:1601023 BL:1601025 L-L1 DS:1600738 L-L1 TB:1600762 L-L1:1600626 L-L2 TB:1600846	BC DS:1600751 BC TB:1600766 BC:1600630 BL DS:1601020 BL TB:1601022 BL:1600973	BC DS:1600752 BC TB:1600767 BC:1600631 BC:1600632 BL DS:1600753 BL TB:1600768
15	Cuscinetto sottobarra con raccordo Sealbag with coupling nozzle Sac de soudure avec raccord Schweißsack mit Anschluss Bolsa de soldadura con conector	1600950R01	BC:1600952R01 BL:1600951R01	BC:1600952R01 BL:1600951R01	BC:1600951R01 BL:1600953R01	BC/L-L2: 1600955R01 L-L1: 1600956R01 BL:1600954R01	BC/L-L2: 1600950R01 L-L1: 1600956R01 BL:1600954R01	BC:1600951R01 BL:1600953R01	BC:1600958R01 BL-L1: 1600957R01
16	Coperchio Plexiglas PMMA Cover Couvercle Plexiglas Plexiglassdeckel Tapa PMMA T= TRASP./TRANSPARENT A=AZZURRO/BLUE/BLEU BLAU/AZUL (D)	T: 1300467	1B-A:1301065 2B-A:1301064	1B-A:1301065 2B-A:1301064	PIATTO/FLAT: 1/2B-T:1300474 CONV./BOMB.: 1/2B-A:1301032 1/2B-T:1300473	T:1300468 PIATTO/FLAT: 1/2B-A:1301037 1/2B-T:1300471 L-A: 1301038 L-T: 1300472 BOMBATO/ CONV./BOMB.: 1/2B-A:1301033 1/2B-T:1300469 L-A: 1301034 L-T: 1300470	PIATTO/FLAT: 1/2B-T:1300474 L-A: 1301060 CONV./BOMB.: 1/2B-A:1301032 1/2B-T:1300473	1/2B-A:1301059 1/2B-T:1300475 L-A: 1301060 L-T: 1300476	

VM18H / VM53 / VM53H / VM20 / VM19 / VM1800 / VM20 TANDEM / VM30

NR.	RICAMBIO Spare Part Pièce de Rechange Ersatzteil Repuesto	VM18H	VM53	VM53H	VM20	VM19	VM1800	VM20 TANDEM	VM30
18	Guarnizione coperchio (prezzo al mt) Cover seal (Meter goods) Joint couvercle (marchandise de mètre) Deckeldichtung (Meterware) Burlate tapa (Mercancias del metro)	1300024	1300810	1300810	1300810	1300810	1300810	1300810	1300810
19	Molla a gas per coperchio Cover gas pressure spring Vérin à gaz pour couvercle Gasdruckfeder Deckel Resorte de presión tapa	1201156	1202101	1202101	STANDARD: 1201159 PIATTO/FLAT: 1201161	1201158	1201159	1201159	1201167
20	Elettrovalvola cuscinetto Sealbag Solenoid valve Electrovanne pour sac de soudure Schweißsack-Magnetventil Electroválvula para bolsa de soldadura	1100006	1100006	1100006	1100006	1100006	1100006	1100006	1100006
21	Elettrovalvola rientro aria Devacumate solenoid valve Electrovanne de décompression Belüftungs-Magnetventil Electroválvula de descompresión	1100009	1100009	1100009	1100011	1100011	1100011	1100011	1100011
22	Elettrovalvola gas Gasflush solenoid valve Electrovanne de Injection gaz Begasungs-Magnetventil Electroválvula de Inyección gas	1100013	1100004	1100004	1100010	1100010	1100010	1100010	1100010
23	Resistenza saldatura (al mt) Sealing wire (Meter goods) Fil de soudure(march.de m.) Schweißdraht (Meterware) Resistencia (Merc. del m.)	Standard	1601029	1601029	1601029	1601029	1601029	1601029	1601029
	Doppia/Double/Doppel/Dobl.	1601030	1601030	1601030	1601030	1601030	1601030	1601030	1601030
24	Filo per Tagliobusta (al mt) Cutting wire (Meter goods) Fil de coupure (marchandise de mètre) Trenndraht (Meterware) Resistencia (Mercancias del metro)	1400359	1400359	1400359	1400359	1400359	1400359	1400359	1400359
25	Scheda sensore vuoto (solo per versioni digitali) Vacuum sensor board (only digital Models) Platine avec Capteur de vide (pour modèles digitales) Vakuum-Druckfühler (für digital-Modelle) Panel con sensor de vacío (para modelos digital)	1400229	1400229	1400229	1400229	1400229	1400229	1400229	1400229
26	Teflon di copertura (al mt) Teflon band (Meter goods) Bande téflon (Marchandise de mètre) Teflonband (Meterware) Banda de teflon (Mercancias del metro)	1300001	1300001	1300001	1300001	1300001	1300001	1300001	1300001
27	Profilo di silicone Silicone rubber Gomme de silicone Silikongummi Perfil de silicon	1300153 4B:1300163	BC:1300154 BL:1300155	BC:1300154 BL:1300155	BC:1300155 BL:1300156	BL:1300157	BC/L-L2: 1300153 BL/L-L1: 1300157	BC:1300155 BL:1300156	BC:1300154 L-L2:1300155 BL/L-L1: 1300158
28	Contatto Switch Switch contact Contacteur Switch Switch-kontakt Contacto Switch	1400203	1400203	1400203	1400203	1400203	1400203	1400203	1400203
29	Tubo Riisan Ø8x6 (al mt) Ø8x6 Riisan hose (Meter goods) Tuyau Riisan Ø8x6 (Marchandise de mètre) Ø8x6 - Riisan-Schlauch (Meterware) Manguera Riisan Ø8x6 (Mercancias del metro)	1300717	1300717	1300717	1300717	1300717	1300717	1300717	1300717
30	Interruttore generale Main Switch Interrupteur principal Hauptschalter Switch principal	230V - 50Hz	1400067	1400067	/	/	/	/	/
	400V- 3ph	/	/	1400094	1400094	1400094	1400094	1400094	1400094
31	Cavetto collegamento barra saldante Sealing bar connection wire Cable de connection barre de soudure Verbindungskabel für Schweißleiste Cable de conexión barra de sellado	1400054	1400054	1400054	1400054	1400054	1400054	1400054	1400054

(A): 1B= 1 BARRA SALDANTE STANDARD / 1 STANDARD SEALING PAD / 1 BARRE DE SOUDURE STANDARD / 1 STANDARD SCHWEISSLEISTE / 1 BARRA SOLDADORA STANDARD
 2B= 2 BARRA SALDANTI STANDARD / 2 STANDARD SEALING PADS / 2 BARRES DE SOUDURE STANDARD / 2 STANDARD SCHWEISSLEISTEN / 2 BARRAS SOLDADORAS STANDARD
 2BL= 2 BARRA SALDANTI LUNGHE / 2 LONG SEALING PADS / 2 BARRES DE SOUDURE LONGES / 2 LANGE SCHWEISSLEISTEN / 2 BARRAS SOLDADORAS LONGO
 2BC= 2 BARRA SALDANTI CORTE / 2 SHORT SEALING PADS / 2 BARRES DE SOUDURE COURTES / 2 KURZE SCHWEISSLEISTEN / 2 BARRAS SOLDADORAS CORTAS
 BL= 2 BARRA A "L" / 2 "L"-SEALING PADS / 2 BARRES DE SOUDURE A "L" / 2 "L"-SCHWEISSLEISTEN / 2 BARRAS SOLDADORAS A "L"
 (B): DS=DOPPIA SALDATURA / DOUBLE SEALING / DOUBLE SOUDURE / DOPPELSCHWEISSNAHT / DOBLE SOLDADORA
 TB=TAGLIOBUSTA / CUT OFF SEAL / COUPE DE SAC / TRENNSCHWEISSUNG / CORTE DE BOLSA
 4B= 4 BARRA SALDANTI / 4 SEALING PADS / 4 BARRES DE SOUDURE / 4 SCHWEISSLEISTEN / 4 BARRAS SOLDADORAS
 (C): L-L1= BARRA A "L" LUNGA / LONG "L"-SEALING PAD / BARRES DE SOUDURE "L" LONGE / LANGE "L"-SCHWEISSLEISTE / BARRA SOLDADORA "L" LONGA
 L-L2= BARRA A "L" CORTA / SHORT "L"-SEALING PAD / BARRES DE SOUDURE "L" COURTE / KURZE "L"-SCHWEISSLEISTE / BARRA SOLDADORA "L" CORTA
 (D): A=AZZURRO / BLUE / BLEU / AZUL; T=TRASPARENTE / TRANSPARENT / TRANSPARENTE; 1B/2B= 1-2 BARRA SALD./1-2 SEALING PADS/1-2 BARRES DE SOUDURE/
 1-2 SCHWEISSLEISTEN / 1-2 BARRAS SOLDADORAS; L=BARRE A "L" / "L"-SEALING PADS / BARRES DE SOUDURE "L"/"L"-SCHWEISSLEISTEN / BARRAS SOLDADORAS "L"