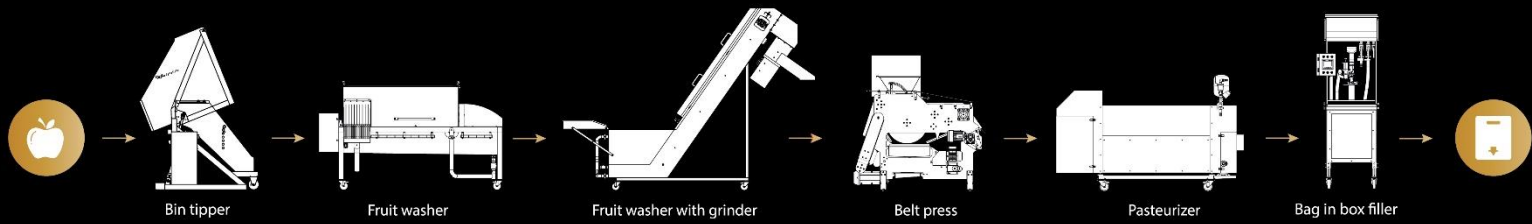


# PROFRUIT MACHINERY

## Official Manual & Instruction Document

### D.E. FILTER



## INFORMATION ABOUT MANUFACTURER

**Manufacturer:** UAB ProFruit Machinery

**Representator:** director Pijus Lopata

**Address:** Razes g. 27, Peskojai v., LT-92385 Klaipėda county, Lithuania

**Company code:** 305202037

**VAT code:** LT100012484812

**E-mail address:** [info@pro-fruit.com](mailto:info@pro-fruit.com)

**Website:** [www.pro-fruit.com](http://www.pro-fruit.com)

## Warning signs

There are special warning and prohibition signs put on the machines which are meant to inform the user about danger and keep everyone – people and machinery – safe at all situations. The meaning of each sign is described below.



**Control console.  
High voltage**



**Headset required**



**Work shoes required**



**The risk of limb injury.  
It is mandatory to remain alert and protect the limbs.**



**The risk of limb injury.  
It is mandatory to remain alert and protect the limbs.**  
**Moving parts of the machine.**



**Hot surface.  
Risk of getting burned.**



**Warning. Sharp parts of machine  
Risk of limb injury.**

### **GENERAL REQUIREMENTS**

General instructions:

- Ambient air temperature +8...+35° C.
- Relative humidity (when temperature +25 °C) till 70%.
- Atmospheric pressure, kPa 84-107.
- The Law on Occupational Safety and Health of the Republic of Lithuania, the General Provisions and Safety Instructions for the Use of Work Equipment and the Laws on Occupational Safety and Health of the European Union must be observed while using the machine.

**The Manufacturer, hereby states that the machinery:**

**Series identification** : **FILTER**  
**Serial Number** :  
**Year of manufacturing** :

**Is in compliance with the following legislation criteria :**

- **Norms 98/37/CE and subsequent amendments on safety of machinery**
- **Norms 2004/108/CE and subsequent amendments on electromagnetic compatibility**
- **Norms 73/23/CE and subsequent amendments on safety of electrical material for low tension**

**The Manufacturer declares that all the following norms have been accomplished and applied :**

EN 12100-1:2005	Safety of machinery <ul style="list-style-type: none"><li>- Fundamental concepts and general principals of design</li><li>- Terminology, basic methodology</li></ul>
EN 12100-2:2005	Safety of machinery <ul style="list-style-type: none"><li>- Fundamental concepts and general principals of design</li><li>- Specification and technical principles</li></ul>
EN 294:1993	Safety of machinery <ul style="list-style-type: none"><li>- Safety distances to avoid contact with lower limbs in dangerous areas</li><li>- Fundamentals concepts and general principals of design</li></ul>
EN 349:1994	Safety of machinery <ul style="list-style-type: none"><li>- Minimum spaces to avoid body's parts crushing</li></ul>
EN 60204-1-1998	Safety of machinery. Electric equipment of machinery <ul style="list-style-type: none"><li>- Part 1 : general norms</li></ul>

## 1. HOW TO USE AND CARE FOR THE INSTRUCTION MANUAL.

This chapter contains information about how to use the instruction manual and the limitations to its use.

### 1.1 - For whom is the instruction manual.

This Instruction Manual has been compiled for the following persons:

- persons in charge of transporting, loading and unloading the machine
- operators
- installers
- maintenance staff

### 1.2 - Aim of the informations contained in the I.M.

The purpose of the manual is to inform readers about how to use the machine in the correct way. It also gives the technical specifications of the machine, instructions about how to handle, install, regulate, use and service the machine and how to order spare parts in the correct way.

### 1.3 - Limitations of the I.M.

Remember that the manual can never substitute the operators' adequate experience. It can only act as a reminder of the main operations required.

Also remember that the Instruction Manual reflects the state-of-the-art at the time the machine is purchased and that the manufacturer reserves the right to update the Instruction Manual and equipment without being obliged to adapt previous Instruction Manuals and productions, unless in exceptional cases.

### 1.4 - How to reserve the I.M.

The user should keep the manual with care so that it lasts as long as the machine.

This is why the manual is supplied in a special case which will safeguard it against wear and deterioration.

If the manual is lost or destroyed, another copy can be obtained by making a specific request to your area dealer or the manufacturer. Always specify the type of machine, the model and the year of manufacture when ordering copies of the manual.

### 1.5 - General warnings

**IMPORTANT !**

never carry out any operation or manoeuvre unless you are absolutely certain that it is correct.

contact the manufacturer or your area dealer if you are in doubt.

The manufacturer relieves themselves from any responsibility for damages incurred to the machine, operating personnel or to the product itself in the case of:

- operation of the machine by unexperienced personnel
- incorrect installation
- improper feeding or operating of the machine
- lack of maintenance
- forced interventions or modification
- use of non-original spare parts
- lack of total observation of operating instructions
- exceptional events

## **2. MOVING OF THE MACHINE**

This chapter contains instructions about how to correctly carry out the loading - unloading and machine handling operations.

### **2.1 - Transport packaging.**

The machine is supplied packed and palletized.

**IMPORTANT!**

**BEFORE UNPACKING THE MACHINE IT IS ADVISABLE TO CHECK WHETHER IT HAS BEEN DAMAGED DURING TRANSPORTATION. IN CASE OF DAMAGES:**

- A) CONTACT OUR SALES REP. OR OUR MAIN OFFICE IMMEDIATELY;**
- B) ISSUE A WRITTEN REPORT;**
- C) COPIES OF THIS WRITTEN REPORT SHOULD BE MAILED TO:**
  - TRANSPORTATION COMPANY
  - INSURANCE COMPANY
  - SELES AGENT OR MANUFACTURER

### **2.2 - Handling operator.**

The persons who handle the machine need not possess any particular requisites. However, the operations should always be carried out by persons who habitually use lifting means, so we suggest the use of experienced personnel in order to move the unit.

### 2.3 - Means necessary to the move the machine.

The machine can be lifted with a lift truck, bridge crane or other suitable means (with a carrying capacity shown in the TABLE 1)

Tables **D.1** enclosed with this manual contain a dimensional diagram of the machine indicating its weight and overall dimensions.

### 2.4 - Instructions to lift the machine.

New machines are all packed.

The overall weight of the machine and its packaging is clearly indicated and this information is also easy to read on the outside of the pack.

The pallet can be harnessed and lifted with a bridge crane or forked by a lift truck.

#### **Important .**

**Although the lifting operations are very simple, always remember to make sure that the load is well balanced before commencing.**

### 2.5 Instructions to lift uncrated machine using a forklift.

Make sure that the lift truck forks are correctly positioned to prevent the machine from being damaged when lifted.

If you intend to use a fork lift to move the unit, be sure that the fork lift is positioned to avoid any damages to the machine. Follow the scheme indicated in Table D.2.

#### **Important**

**To prevent damage, make sure that the metal part of the forks is unable to come into direct contact with the framework of the machine.**

**Do not sling the machine with a metal cable or with metal chains.**

## 2.6 Instructions to lift uncrated machine using a overhead crane.

Accessories :	belts in textile fiber.
minimum carrying capacity:	see TABLE 1
length:	see TABLE 1

The harnessing diagram is given in table D.2 enclosed with this chapter.

### **Important**

**Do not use metal ropes or chains for harnessing purposes as they could damage the machine.**

## 2.7 - Moving instructions

The machine is mounted on four wheels and can therefore be moved by hand or, better still, with a driven truck.

Particular precautions must be taken if the floor surface is not level.

### **Important**

**Do not move the machine by hand on a non-uniformed or uneven surface.**

**In such a case, position the machine on its frame and move it by means of a fork lift or an overhead crane taking special care not to damage the unit.**

**If the unit experiences any type of shock, immediately control if any damage has been incurred and if necessary immediately contact either the manufacturer or the sales agent.**

## 2.8 - Stationary precautions

The machine has been designed to work on a flat surface.

In these conditions, it will not need to be locked in place in any way.

**Important**

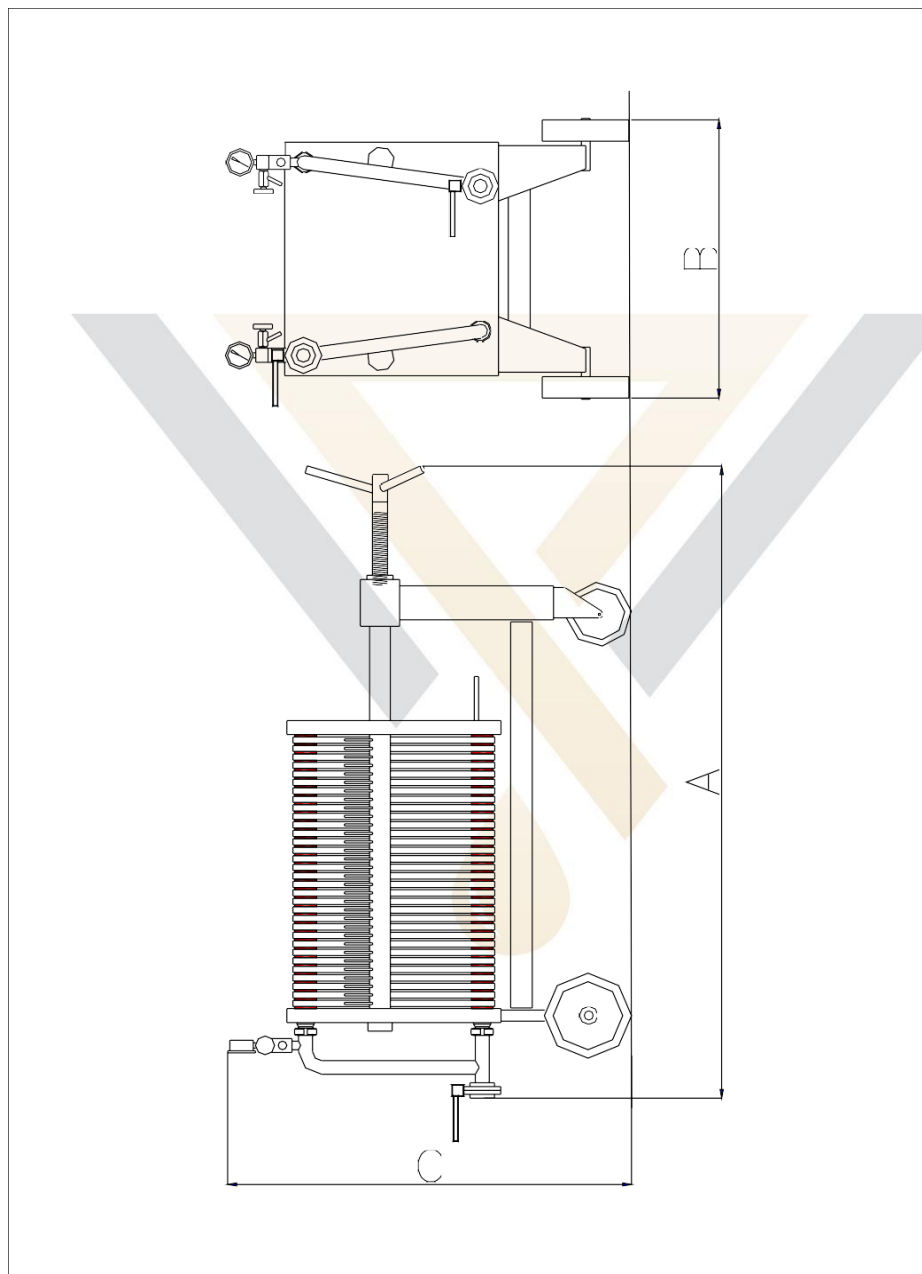
**If the machine has to work on an uneven surface, secure the fixed wheels with the provided stops and position the brakes on the two free wheels**

**It is not suggested to keep the machine on a slope greater than 2%.**

**It is inadvisable to leave the machine standing on slopes with a gradient of more than 5% even when it is blocked.**

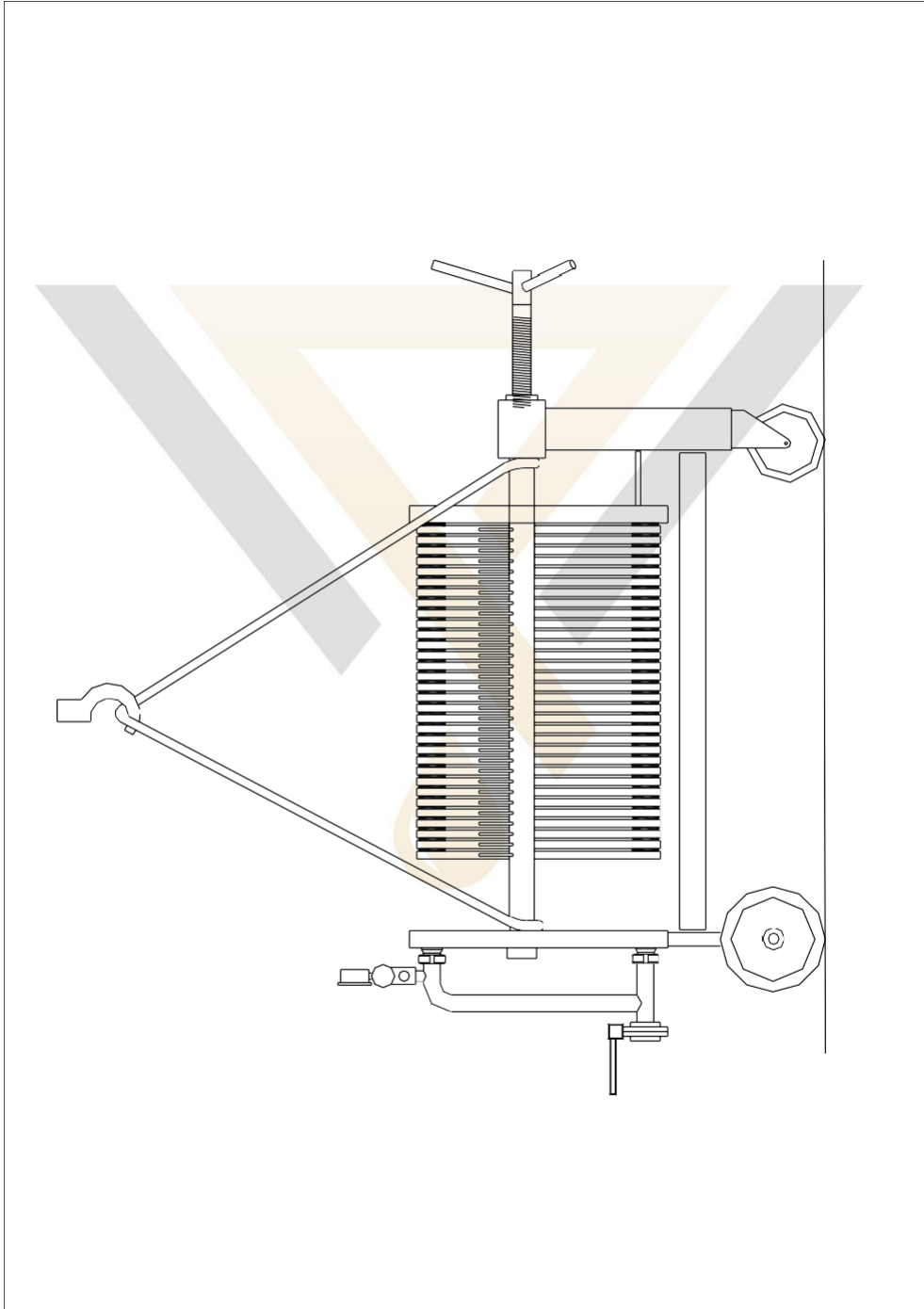


**TAV.D.1**  
**DIMENSIONAL**  
**DIAGRAM**



MODÉL	3	4	5	6	7	8	9	10
A (mm)	1240	1240	1560	1560	2065	2065	2495	2835
B (mm)	685	685	685	685	685	685	685	800
C (mm)	940	940	940	940	1000	1000	1095	1235

**MOVING OF THE  
MACHINE**



### 3. OPERATIONS, MEANS AND MATERIALS NECESSARY FOR INSTALLATION.

In this chapter you will find those informations pertaining to the set up (by the customer) and installation of the unit.

#### 3.1 Electrical outlet -Control panel and General plant characteristics.

The plug, the control panel and the general plant must have the characteristics required by the installed pump (see spare parts chapter).

### 4. INSTRUCTIONS FOR POSITIONING OF THE MACHINE

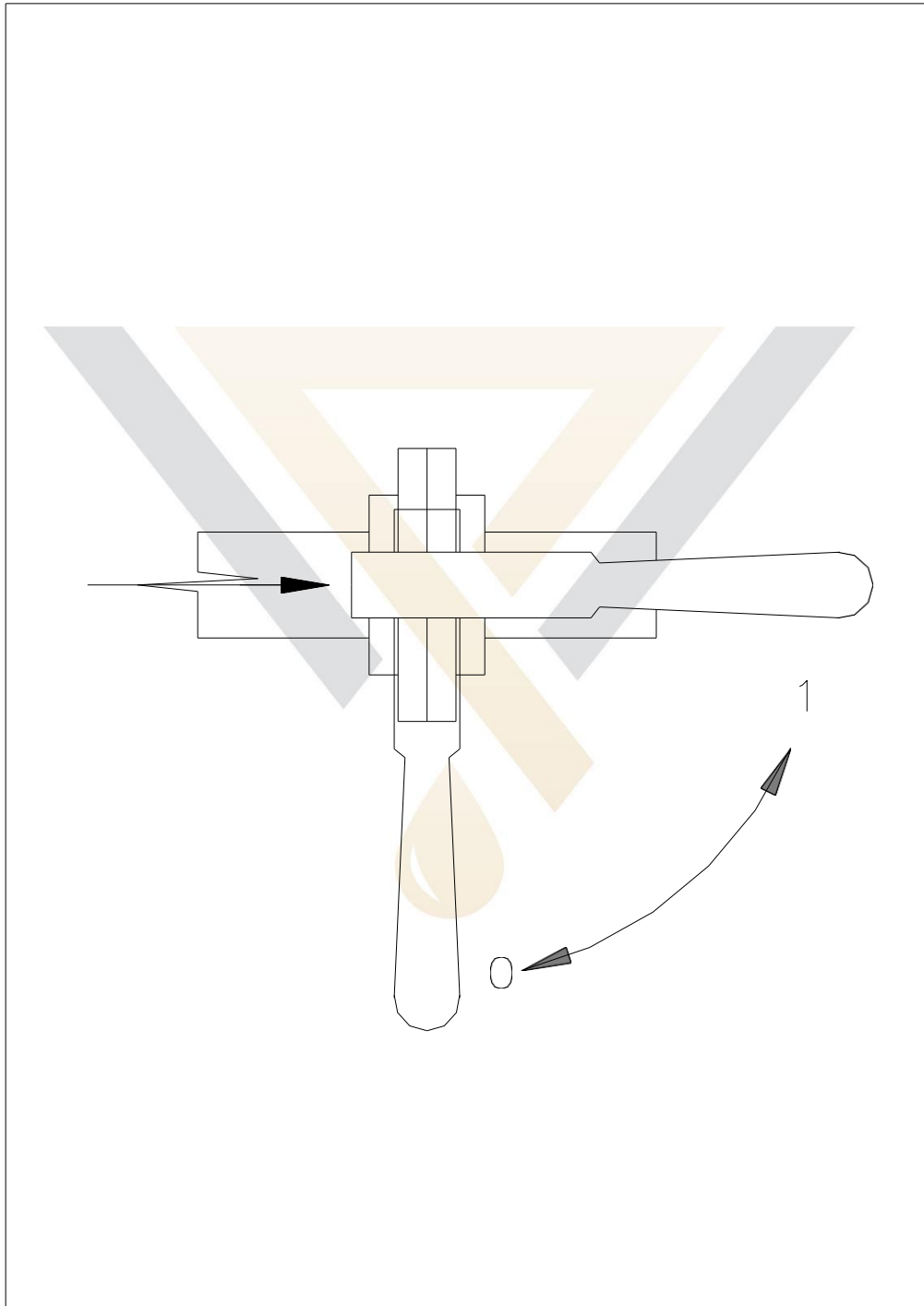
#### 4.1 Receiving of the machine.

The machine is delivered already mounted and ready to start.

#### **IMPORTANTE!**

**The valve is closed when the handle is perpendicular (90 degrees) to the piping (Rif.TAV.D.5), and it is open when it is parallel to the piping.**

**The middle position will provoke a strangling effect on the valve**



0	CLOSED
1	OPEN

## 7. DESCRIPTION OF THE MACHINE.

### 7.1 Parts that compose the filter.

The filter is composed of a bearing frame (**10 TAV.100**).

The filter set is composed of various plates (Noryl), and the closing mobile plate (**12 TAV.100**).

Various valves for the filtration and for eventual steam sterilization complete with warning lights and pressure gauges (**5/6/7/8 TAV.100**).

The filter is also composed of a closure screw (**14 TAV.100**) with cross bar (**15 TAV.100**) and of a drip collecting tray (**9 TAV.100**).

### 7.2 Operations to execute before starting.

Before starting, and sometimes during operation check that the tie rod closing nuts (**1**) are tightly closed. Lubricate the closure screw with grease. At the same time move the screw both forwards and backwards being sure to lubricate entire rod. Once completed, remove excess grease.

#### 7.2.1 Sanitizing:

The machine, once connected to the feeding line, is ready to start.

#### **IMPORTANT**

**Before starting the machine ensure the following :**  
**Initial start : a sanitizing wash has been completed**

**After an inactive period : a sanitizing wash has been completed.**

**Sanitizing solution: prepare a solution of water and citric acid of 3% at a temperature of 45 degrees C.**

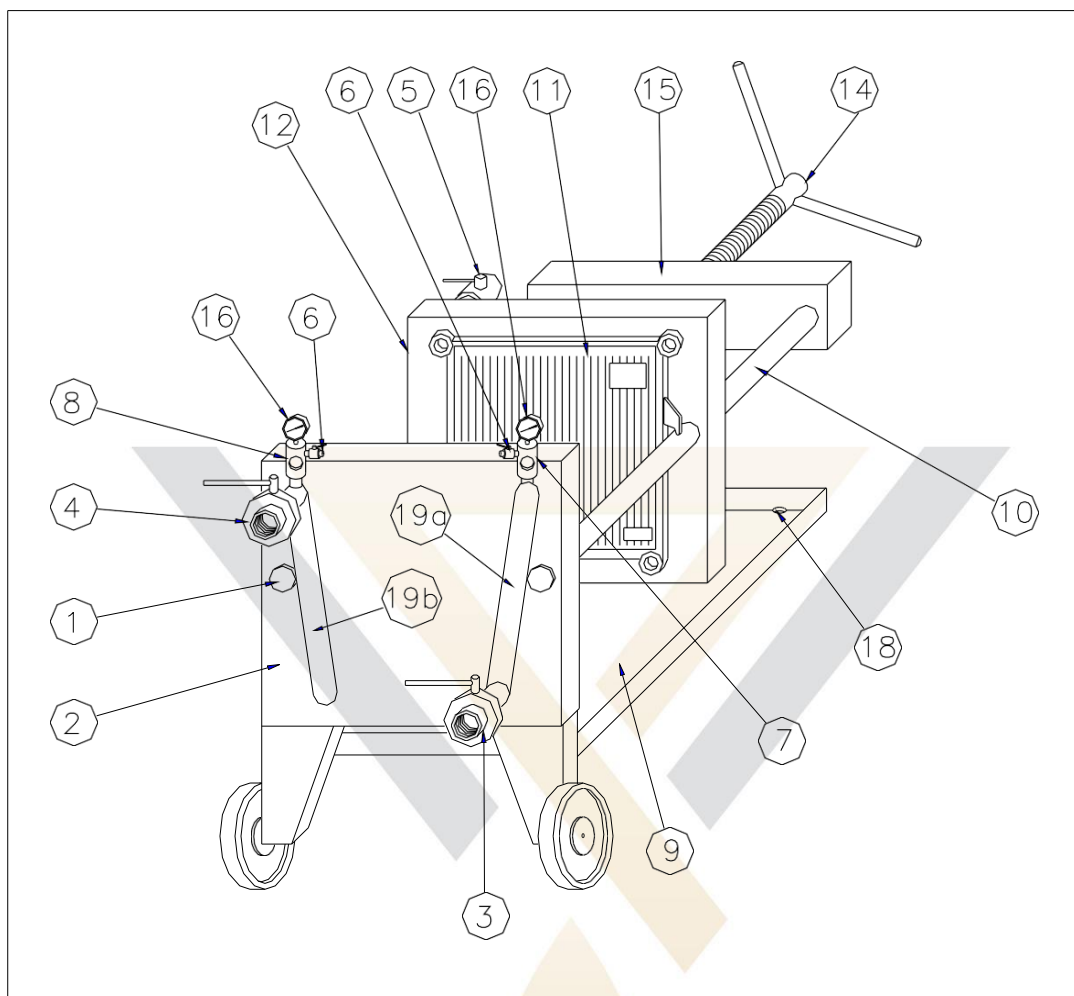
- a) Prepare the sanitizing solution. (approx. 300/500 Lt)
- b) Prepare the valves 3, 4 e 6 opened.
- c) Filter sheets inserting
- d) Let it circulate for 15-20 minutes.
- e) Completely empty the filter, opening the valves.
- f) Repeat this operation until the machine is sanitized

### 7.3 Filtration that you desire to execute.

According to your needs, this unit will allow you to achieve various kinds of filtration. From rough filtration to sterilization. That type of filtration is achieved through the use of different filtering sheets (**TAB D.150**). Working principles of the filter.

The contaminated or dirty product is pushed through the filtering sheets where the required filtration is achieved according to chosen cardboards, i.e. the associated micron level of the cardboards (**TAV.D.110**).





<b>1</b>	Tie rod closing unit
<b>2</b>	Closing head plate
<b>3</b>	Inlet valve
<b>4</b>	Outlet valve
<b>5</b>	Sampling valve (optional)
<b>6</b>	Air discharge valve
<b>7</b>	Inlet sight gauge
<b>8</b>	Outlet sight gauge
<b>9</b>	Drip collecting tray
<b>10</b>	Bearing frame
<b>11</b>	Filtering element
<b>12</b>	Closing mobile plate
<b>14</b>	Closure screw
<b>15</b>	Cross bar
<b>16</b>	Pressure gauge
<b>18</b>	Discharge plug
<b>19a</b>	Inlet pipe
<b>19b</b>	Outlet pipe

#### 7.4 Cardboards (Filter Sheets) Inserting

First of all, each cardboard has a directional flow which allows the product to pass through. The cardboards have both a smooth and a porous side. The product must go in from the porous side and must exit from the smooth. Therefore, the smooth side must always be mounted on the clean side of the filter plate. (For easy following please find explanatory drawing on previous page).

Basically, the first cardboard (the one between the head plate and the 2nd plate) must have the smooth side turned toward the pressure gauges. Every odd card board, that is the 3rd, 5th, 7th, and so on (**TAV.D.110**), must have the smooth side turned toward the pressure gauge. Consequently, all even number cardboards must have the porous side turned toward the pressure gauges.

#### 7.5 Working pressure.

You must not exceed a pressure of **2 Atm.** . If you have a counter pressure on the outlet pressure guage, do not exceed a **2 Atm.** difference between the inlet and outlet pressure gauges.

#### 7.6 Operating.

Connect the filter to the feeding pump, restricting the by-pass to a max pressure of **2 Atm.** Open the inlet valve (**3**) and open air discharge valves (**6**). When the product begins to exit via the air discharge valves (**6**), close valves and open the product outlet valve (**4**). The outlet sight gauge (**8**) allows you to control product filtration level. If out coming product is not sufficiently filtered, you may have to change your filter pads accordingly to a more porous filtering sheet.

If the product becomes dirty during filtration, it is possible that one of the cardboards have broken. Open filter and control if this is the situation. This may occur at **2-2.5 Atm.** Periodically, during filtration allows air to escape from the air discharge valves (**6**). If you are getting a high pressure too quickly, you need to utilize a tighter (less porous) filtering sheet.

#### 7.7 Drip collecting tray.

The filter is equipped with a drip collecting tray (**9**). The loss of drops from the cardboards during filtration is to be considered normal. This loss increases with the increasing of filtration pressure. The tray is complete with a small discharge for easy removal of liquid.

## 7.8 Washing With Water (Excepted Models For Oil)

Tightly close the filter element. Connect the inlet valve to the water line and slightly open the water. While flooding the filter with water, open all other valves to allow an escape of air, therefore, avoiding any back pressure on the inlet pressure gauge.

## 7.9 Sterilization with vapor

Based on theoretical calculations the pressure to which the slabs can be subordinates noryl, to varying of the temperature, does not have to exceed the faces in the being followed table.

Temp.=100 °C	-	Press. = 0 bar
Temp.= 90 °C	-	Press. = 0,5 bar
Temp.= 80 °C	-	Press. = 0.8 bar
Temp.= 50 °C	-	Press. = 4.5 bar

Advanced pressures can irreversibly deform geometry of the slab.

## 7.10 Production level of the filter.

The filter must be connected to a pump complete with by-pass with a max. capacity suited for your filter. In the case of dense products a gear pump with a by-pass should be used in place of a centrifugal pump. **The production of the filter does depend on the pump's capacity**, but rather on: the cardboards used, the characteristics of the product, and on the level of contaminates present in the product. The production level can be regulated by recognizing the pump's characteristics, and with proper use of the by-pass in respect to the pressure indicated by the pressure gauge.

## 7.11 Removing the sheets from the filter.

When removing the filter plates, remember that the assembly must be reinserted in the same order so to uniform the exact format of the filtration.

**NB:** The head plate is that which is reinforced and the middle plates are indicated by even numbers.

## 7.12 Filter element

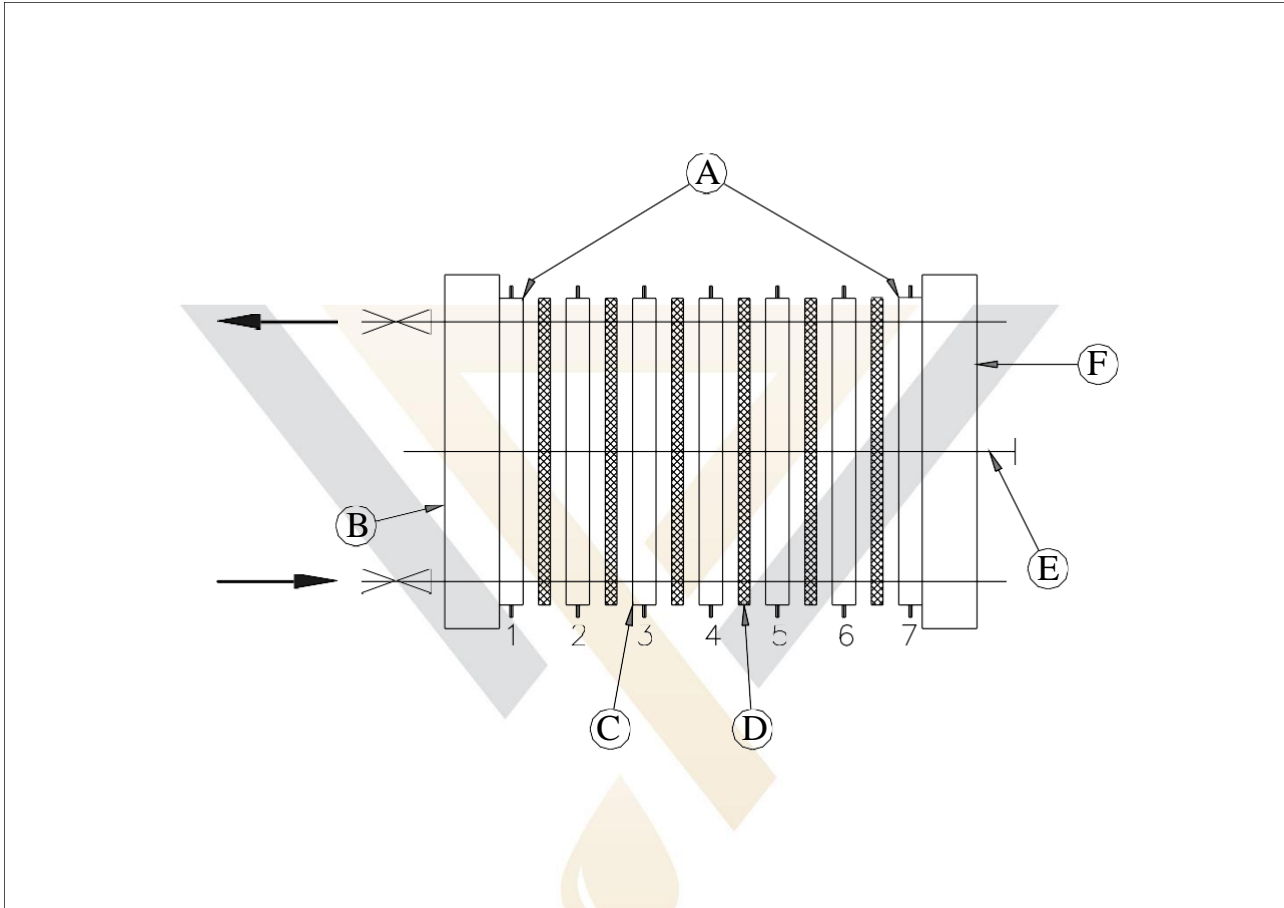
The filtration capacity of the card boards 40 x 40, according to the manufacturer is:

- filtration with clarifying cardboards 80 lt/h each
- filtration with sterilizing cardboards 50 lt/h each

When using sterilizing cardboard filter sheets do not exceed 1-1.5 bars of pressure. This will avoid damaging the cardboard pores.

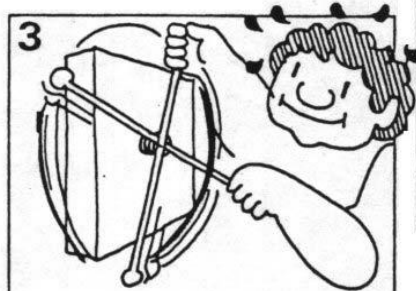


**TAV.D.110**  
**WORKING PRINCIPLES**

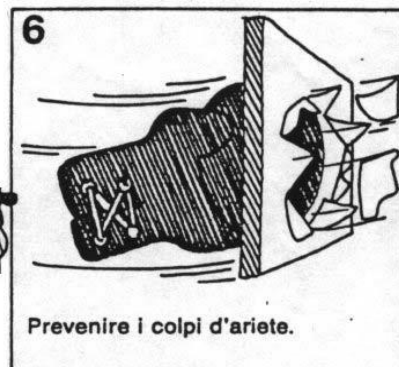


A	HEAD PLATE	E	CLOSING SCREW
B	S/STEEL PLATE	F	SLIDING S/STEEL PLATE
C	PLATE	1-3-5-7	CLEAN PLATES
D	SHEET	2-4-6	DIRTY PLATES

## 8. ADVICEMENT.



Dopo il lavaggio dello strato filtrante chiudere ulteriormente il filtro per ridurre così le perdite per sgocciolamento.

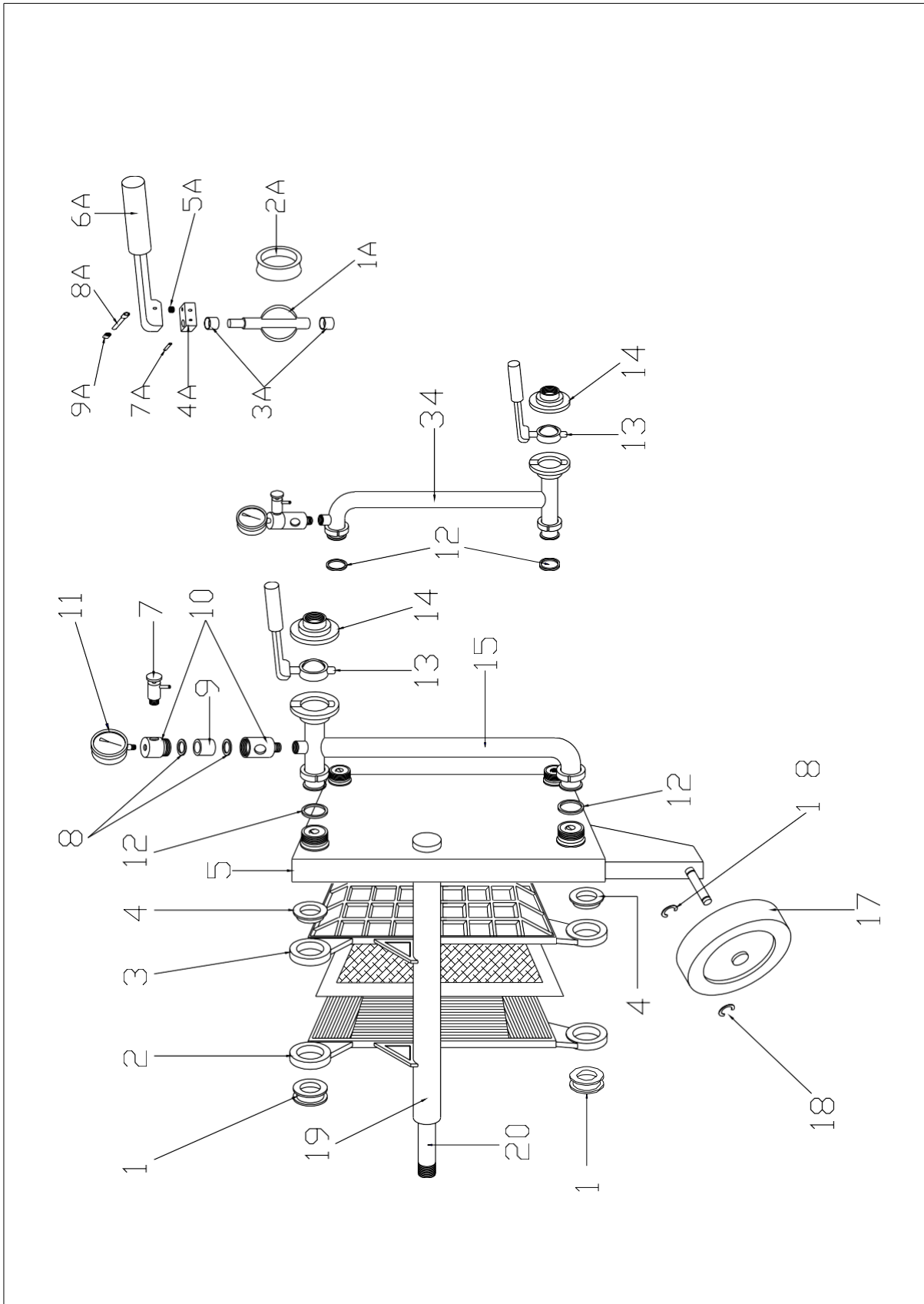


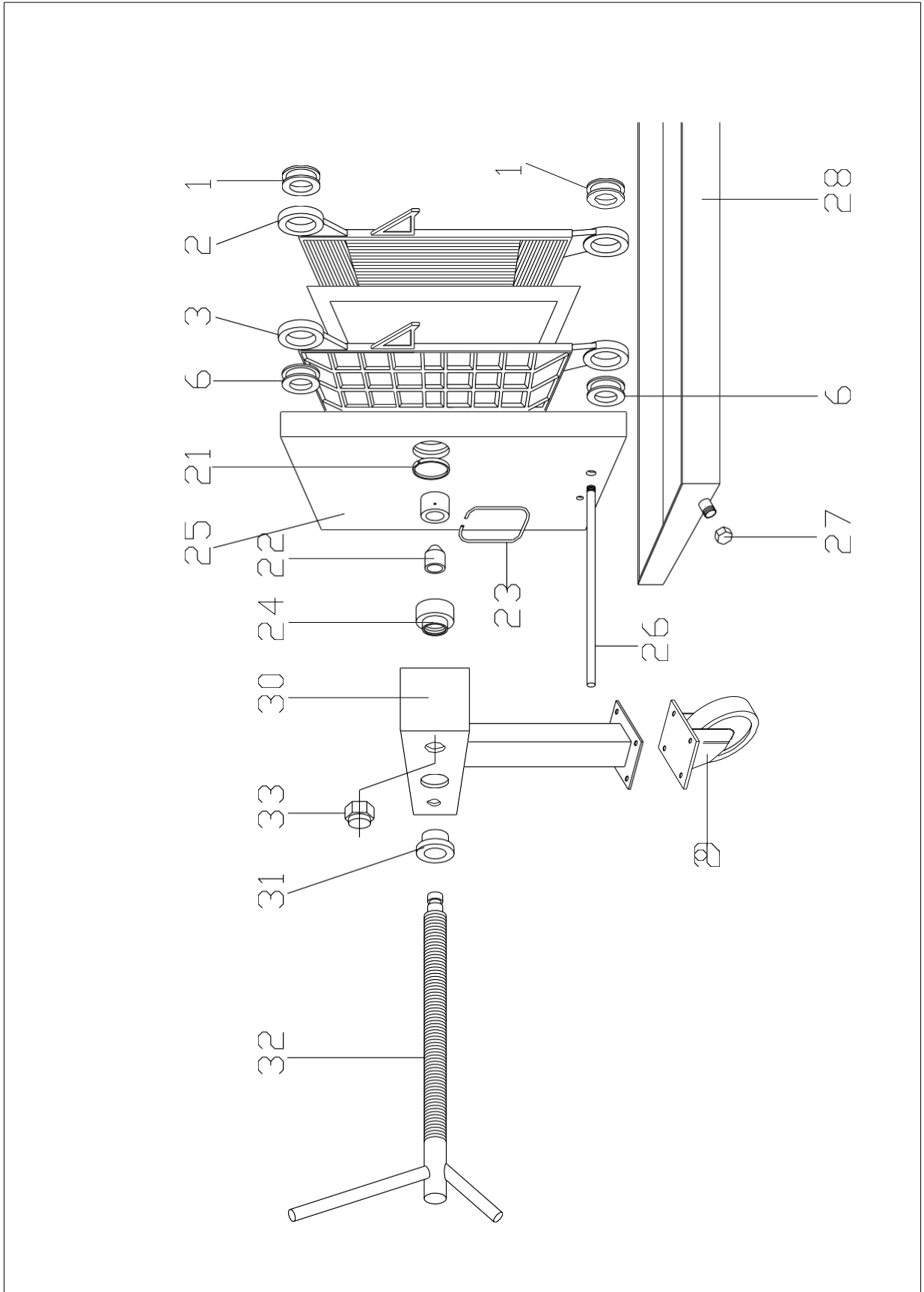
KIND OF TREATING	KIND OF PLATE						
	BECO	CARLSON	CARTIERA	FILTROX	P.DE BESOS	SCHEN K	SEITZ
MOST	K1	XE 20	CKL-V12	AF 15	SA - 050	AF 6000	K 800
YUNG WINE, PARTICULARLY DIRTY FOR FILTRATION THAT DOES NOT PRECEED BOTTLING	KD3	XE 90	CKP V8	AF 30	SA - 390	AF 4000	K 700
COMPLETELY FERMENTED WINES THAT NEED POLISHING	KD7	XE150	CKP V12	AF 70	SA - 070	AF 1600	K 150
FILTRATION OF PERFECT POLISHING FOR WINES WITH LOW BACTERICAL CHARGE	KDS15	X E 400	CKP V 16	AF 100	SA - 890	AFS 800	KS 80
STERILIZING FILTRATION OF WINES WITH NOT FERMENTED SUGAR RESIDUAL	STERIL 140	X E 675	CKP V 20	AF STERIL 110	SA – 950	AFS 400	EK
EVERY APPLICATION WICH IS REQUESTED AN ABSOLUTE STABILITY	S.S. 100	XE 2000	CKP V 24	AF STERIL 140	SA - 990	AFS 100	EKS

## **9. SPARE PARTS MANUAL**

The spare parts manual is composed of a series of cross-section designs, to allow for a quick identification of parts to be ordered.

TAB.1





RIF.	DESCRIPTION	DESCRIZIONE
1	PLATE GASKET	GUARNIZIONE PIASTRA
2	PLATE STANDARD	PIASTRA INTERMEDIA
3	HEAD PLAT	PIASTRA DI TESTA
4	END PLATE GASKET	GUARNIZIONE PIASTRA DI TESTA
5	CLOSING HEAD PLATE	TESTATA FISSA
6	PLATE GASKET	GUARNIZIONE PIASTRA
7	AIR DISCHARGE VALVE	RUBINETTO SPURGO
8	GASKET	GUARNIZIONE
9	GLASS TUBE	TUBO VETRO
10	SIGHT GLASS	SPECOLA
11	PRESSURE GAUGE	MANOMETRO
12	RING GASKET	GUARNIZIONE
13	COMPLETE HANDLE	MANIGLIA COMPLETA
14	BATTERFLY VALVE FLANGE WITH CONNECTION	FLANGIA VALVOLA FARFALLA CON RACCORDO
15	INLET PIPING	TUBAZIONE INGRESSO
17	RUBBER WHEEL	RUOTA GOMMA
18	BENZING RING	ANELLO BENZIF
19	SPACER PIPE	TUBO DISTANZIALE
20	TIE ROD	TIRANTE
21	SLIDING BUSHING	BOCCOLA SCORRIMENTO
22	BUSHING	BOCCOLA SPINTA VITE
23	PLUG	SPINA INDIETREGGIO VITE
24	NUT SCREW	MADREVITE
25	CLOSING MOBILE PLATE	TESTATA MOBILE
26	SHEET ROD	ASTA CARTONI
27	PLUG	TAPPO
28	BASIN	BACINELLA
29	TURNING WHEEL	RUOTA GIREVOLE
30	BACK BRIDGE	PONTE POSTERIORE
31	BUSHING	BOCCOLA
32	SCREW	VITE
1A	BUTTERFLY	FARFALLA
2A	GASKET	GUARNIZIONE
3A	BUSHING	BOCCOLE
4A	HANDLE VALVE BLOCK	BLOCCHETTO
5A	SPRING	MOLLA
6A	HANDLE	MANIGLIA
7A	PLUG	SPINA
8A	TIE ROD	TIRANTE
9A	BLOCK NUT	DADO BLOC.