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INSTRUCTION MANUAL

FILTER VF 410

FILTER VF 420

FILTER VF 430

FILTER VF 440

FILTER VF 450

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1. INTRODUCTION

This instruction manual contents the necessary instructions for the operation and maintenance of your plate filter type VF 410, 420, 430, 440 und 450.

GENERAL SAFETY MEASURES

The manufacturer "Letina inox d.o.o" disclaims all liability for bodily injuries and/or material damage due to inappropriate handling because of the non-compliance of the safety and prevention measures. Before putting the gear into service it is indispensable that the operator has taken note of all course of action in accordance to this instruction manual.

INTENDED AND NOT INTENDED USE

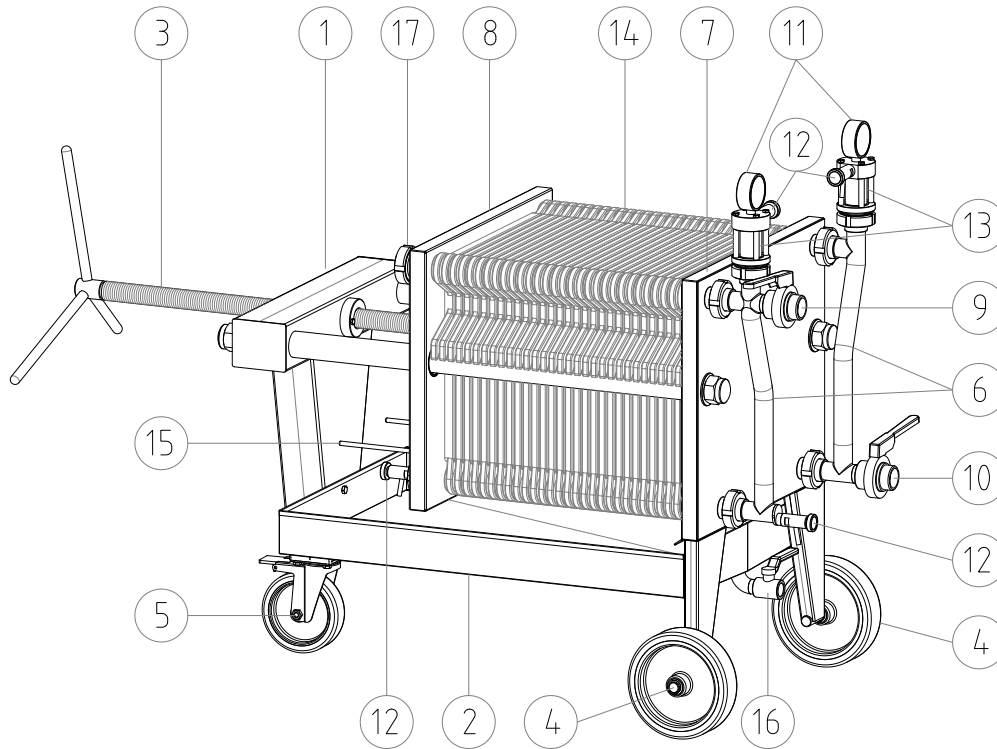
The non-compliance of der the mentioned responsibility can cause technical errors and bodily injuries that´s why the manufacturer disclaims all liability in case of accident or technical damage on the gear. This has impact to the guarantee validity.

SAFETY AND PREVENTION MEASURES FOR THE OPERATOR

- a) During the repair or maintenance of the gear pay attention that the power plug is pulled out from the electricity circuit.
- b) Every maintenance, installation or relocation of the gear while under power running can cause serious or lethal injuries.
- c) Movement or delocation during the filtration proces have to be avoided.
- d) The cable´s and electric relation´s non-hazardous operational reliability must be checked before each use.
- e) While starting the gear you must not be barefoot, neither standing in wetness, nor having wet hands.
- f) The operator is not allowed to effect operations which are not described in this operation manual.

2. TECHNICAL DATA AND FILTERPARTS

- Filter sketch (Fig. 1)



1. - support; filter frame
2. - collecting pan
3. - threaded spindle for manual tension
4. - wheel
5. - turnable wheel with brake
6. - inlet and discharge armature
7. - fix pressure plate
8. - flexible pressure plate
9. - butterfly valve - Inlet
10. - butterfly valve - Discharge
11. - manometer
12. - de-aeration tap, sample tap, discharge valve
13. - sight glass
14. - plastic plates
15. - holder for carton layers
16. - total discharge on collecting pan
17. - closure

- Filter models

| | VF 410 | VF 420 | VF 430 | VF 440 | VF 450 |
|-----------------------------------|--------|--------|--------|--------|--------|
| Number of plates | 8 | 18 | 28 | 38 | 48 |
| Number of layers | 9 | 19 | 29 | 39 | 49 |
| Endplates | 2 | 2 | 2 | 2 | 2 |
| Filtration surface m ² | 1,3 | 2,6 | 4,0 | 5,3 | 6,7 |

3. ONE-WAY FILTRATION

3.1. INDISPENSABLE INSTALLATION

- The filter position must allow enough free space for an undisturbed and impeccable working process.
- The installation, demonstration and first start-up should be effected by qualified staff (techician and oenologist).
- The staff which will be entrusted with the filter maintenance, should be present during the installation, demonstration and first start up to acclimatize with the filter´s functions and its maintenace.
- In case the floor isn´t even, you must pay attention that all wheels are solidly fixed on the floor and the drake is pulled.
- Before the start-up the filter should be washed out with dish-washing liquid (food-safe as used in food industry)
- Pipes/tubes must be well affixed to the inlet valve and the discharge valve

3.2. PREPARATION FOR THE START-UP

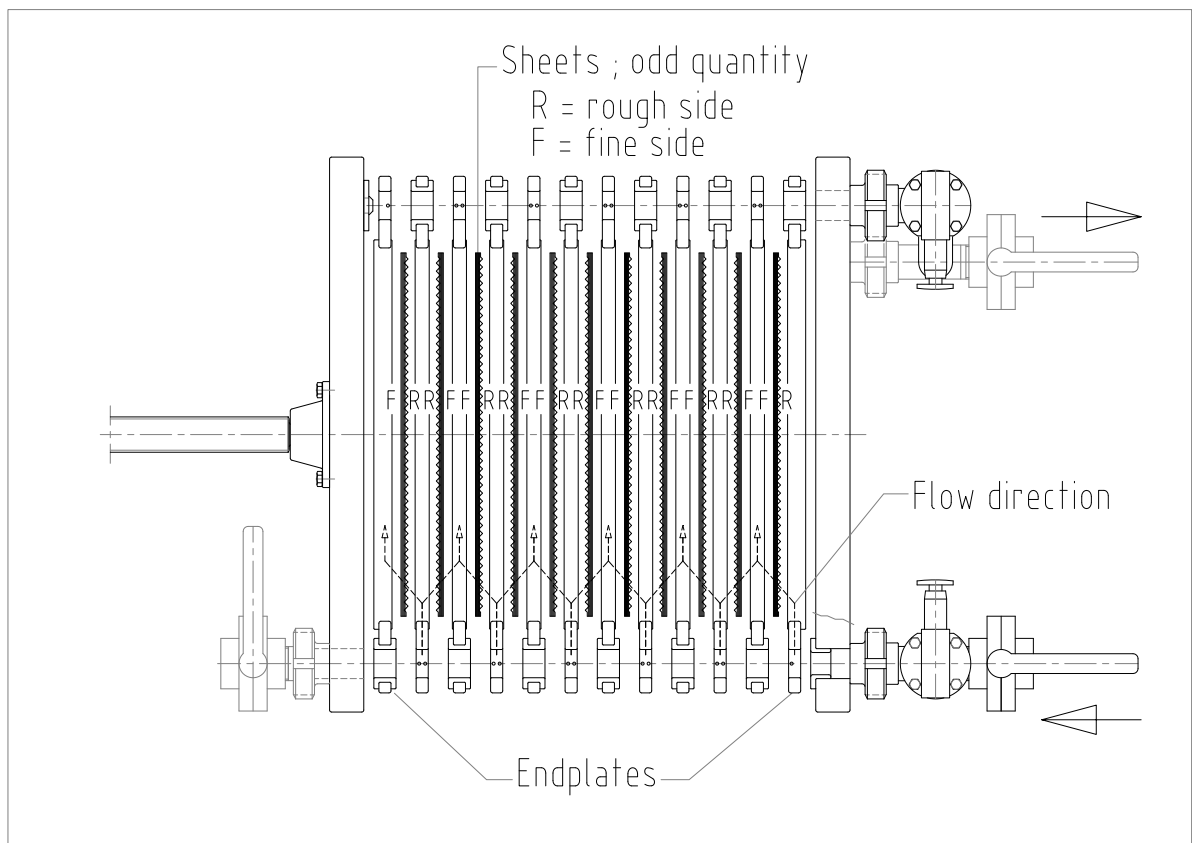
- Use exclusively new carton layers in good condition
- Choose the carton filter layers in accordance to the needed clarity degree. The filter layers for the normal filtration are different from those for sterile filtration. Absolutely use sterile layers if it concerns wines with sugar rest and it is recommendable to use them also for all white wines. Each manufacturer of carton filter layers has its own identification mark, that´s why you should ask for written instructions while purchasing the filter layers.

Overview of SEITZ carton layers for filter:

| Point of time of application | Application method | SEITZ carton layers (according to strongness and way of trubidity) |
|---|---|---|
| After the first decanting of young wine | Cleaning | SEITZ K900, K700, K300 |
| After the second clarification | Cleaning | SEITZ K300, K200 |
| After cleaning | <ul style="list-style-type: none"> - Blue cleaning - Clarification - Bentonit - Clarification - Gelatine | SEITZ K200, K100 |
| Last fine filtration | - Uncontaminated wines | SEITZ K200, SEITZ K100, SEITZ KS80 |
| | - Problematic wines | SEITZ KS50, SEITZ EK |
| | - Before membranic filtration | SEITZ KS80, SEITZ KS50, SEITZ EK |
| Filtration before the filling | Red wine, dry (bacterially uncontaminated) | SEITZ K300, K100 |
| | White wine, dry | SEITZ K100, KS80 |
| | Wine with sugar rests | SEITZ KS80, SEITZ KS50 |
| | Wine with sugar rests (bacter. uncontaminated) | SEITZ KS50, SEITZ EK |
| | Wine with high pH | SEITZ EK, SEITZ EK1 |
| | Very bacterially contaminated wines | SEITZ EK1, SEITZ EKS |

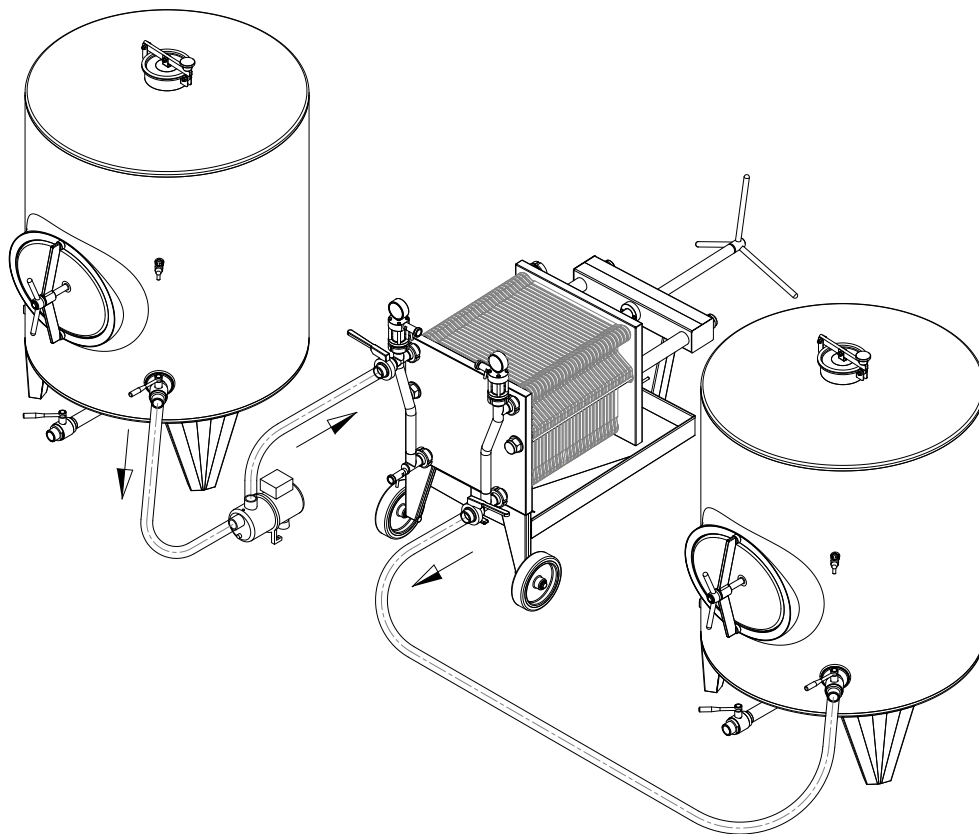
- Choose the type of filter layers that meets your requirements. Before you put the layers into the filter, immerse them for cca. 10 minutes in water or wine to get them wet. It is imperative to pay attention on the fine side of the layers (Fig. 2) and then put the layers between the plastic plates in the filter. Strain the filter plates with aid of the threaded spindle and pay attention to a flush accumulation of the composition between the plastic plates and the gasket.

- Sketch of inserted carton layers (Fig. 2.)



- Before starting the filtration the filter has to be rinsed well with water. Let pass 50 – 100 liters of water through the filter. Mix a bit of citric acid (0,6 % solution) in the last 20 liters and then let it sink in. Press this solution out of the filter with some water. This pocedure should remove the paper taste of the disposable carton layers. Botteled wine can be defiled because of this odour and taste. Especially if the plates/layers were stocked in a humid area they can have taken mildew odour. After rinsing out the filter and the plates, there is only water left in the filter which will be pressed out by the wine. This is the most sensible part of the preparatory work. To avoid residual water in the wine or even in the first few bottles, the outflowing liquid must be controlled by taking samples until the liquid turns into pure wine and then separate the first at least 20 liters (depends from filter dimensions and number of plates).

- Sketch of filter composition (One-Way-Filtration)



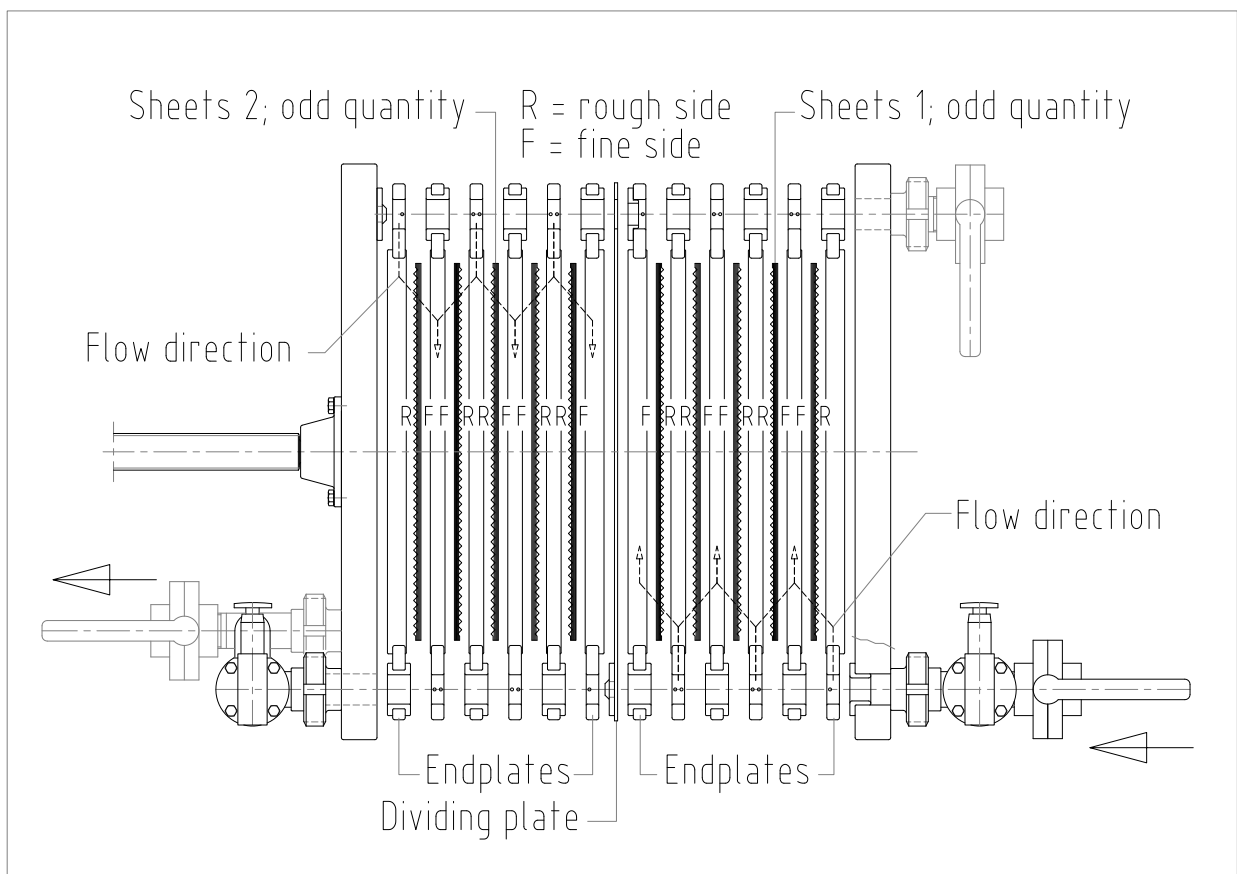
- Apart the controlled through flow it is also very important to respect the approved pressure. A good filtration can be achieved with back-pressure of 0,10 to 0,20 bar and should be interrupted as soon as the difference between inlet and discharge manometer reaches 2 bar and 1,5 bar if sterile filtration. If pressure passes 2,5 bar at the discharge manometer this may cause plates breakthrough and wine can flow non-filtrated through the breakages. As soon as the pressure approaches this upper limiting value you should screw down a bit the inlet valve so the though flow will be minimised, the pressure decreases and you can continue with the filtration. This process can be repeated as long as the through flow of the filtered wine will be completely decreased. After this the carton layers should be replaced and the operation repeated from the beginning.
- The wine you want to filter has to be clear and without wine lees. In case the filter infiltrates wine lees, the carton layers will be filled quickly. As soon as you finish the filtration, take out the layers and immediately remove them.
- It is dangerous to use pumps which with their capacity and construction don't correspond to it's application for filter use because sudden collision (pressure increasing and decreasing) can damage the filter plates.
- The filtration requires a stable presser without sudden increase or decrease. That's why at beginning of the filtration you should first switch-on the pump and then slowly open the inlet valve, the de-aeration tap

and the discharge valve. Close the de-aeration taps not until bubbles aren't visible anymore. Reversed order when interrupting the filtration. First you close the discharge valve, then the inlet valve and at last switch off the pump.

- **It is of particular importance that the pressure on the discharge valve doesn't exceed 2,5 bar in any moment to avoid a break through of the plates.**

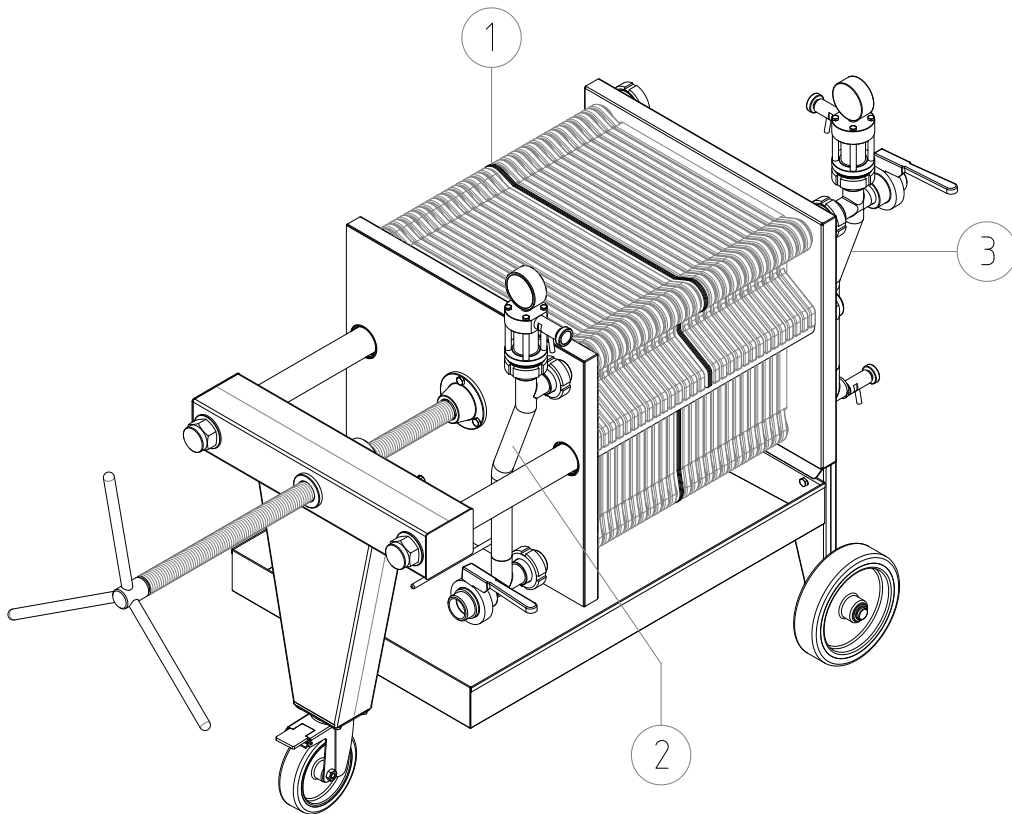
4. DOUBLE FILTRATION

- Double filtration means: prefiltration and repeating of the filtrating proces OR filtrating process in one operating proces with the help of two different tightnesses of layers and use a dividing plate for the diversion.
- **Sketch of inserted carton layers for double filtration (Fig. 3)**



- **The filtration set includes a dividing plate, two end plates and a set of gaskets**

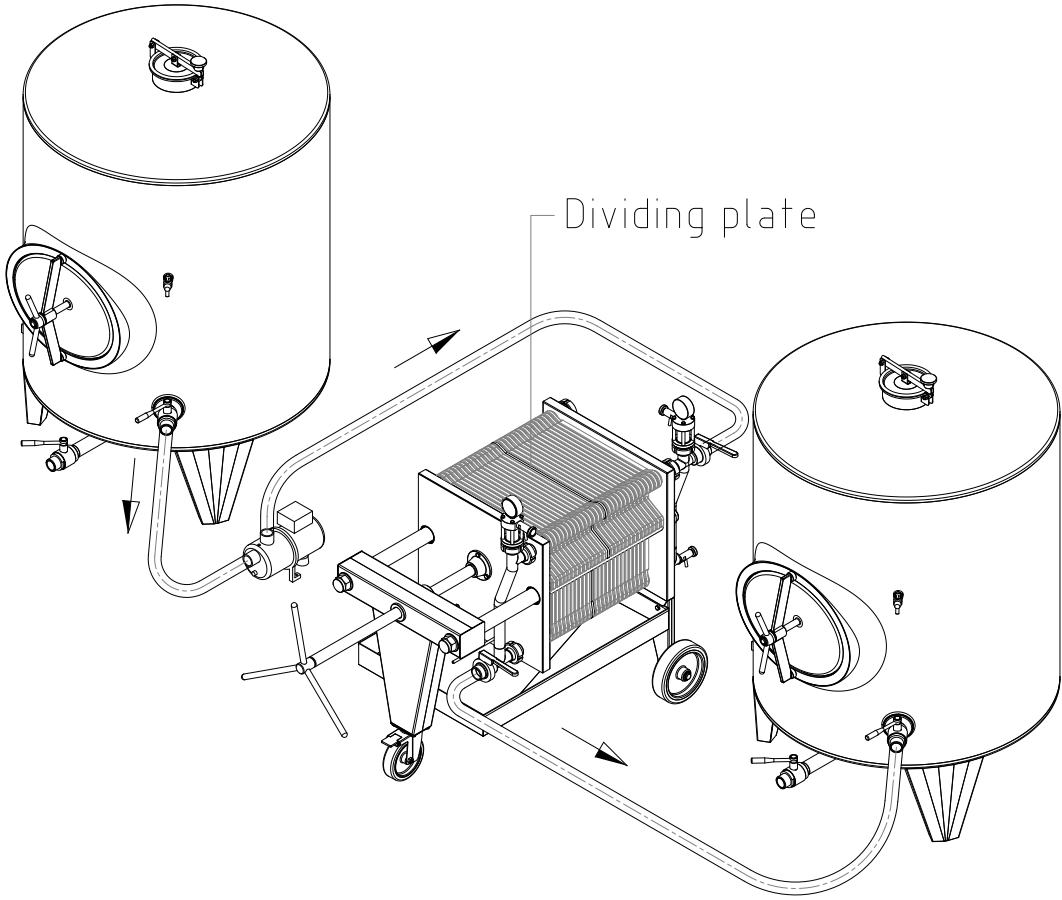
- Sketch of filter for double filtration (Fig. 4)



1. – dividing plate
2. – discharge branch
3. – inlet branch

- as you can see at the sketch, the discharge branch has to be removed from the fix pressure plate to the flexible pressure plate. The openings on the fix pressure plate should be closed with sample tap and closure which were placed on the flexible pressure plate. At the end you insert the dividing plate.
- description for further procedure before the filtration start see chapter „one-way filtration“.

- Sketch of filter composition (double filtration)



4. FILTER STERILISATION

4.1. FILTER STERILISATION WITH HOT WATER

- To make this procedure for the EPDM gaskets as gentle as possible, please enable the separation of the plates and the air outflow from the carton layers. The space between the plates should not be strained too much so use carefully the threaded spindle to reach adequate drainage and ensure impermeableness.
- Slowly and carefully open the water tap and let the water run in the filter and run through all valves.
- As soon as the water begins to flow out from the valves, you should low the water down and decrease the water supply.
- When the water with temperature 80 – 85 °C begins to run into the filter, let it flow for about 20 minute and with a max. back-pressure of 1 bar.
- At the end of the sterilisation proces you close the valves and taps but not the discharge valve. There you attach a sterile gauze.
- The pression must constantly be controlled, the manometer mustn't display more than 1 bar.
- The filter will be sterilised by hot water running through the filter for 15-20 minutes.
- Then you let cold water run through the filter to let it cool down.
- After the process of letting water run through the filter, the plates need to be tighten again.
- When the filter is completely cooled down, it is ready again to filtrate wine. But the first wine quantity must be separated and be filtered again, so you can be 100% sure the wine didn't take flavour of filter plates or water.
- **If the filter is part of the botteling process, it must be sterilised as the rest equipment.**
- **As long as the filter plates are hot or very hot, never untight the spaces to release them.**
- **Do not tight up the plates and release them until they are cooled. The plates would become deformed and could not be returned in basic position.**
- **The plates should not be removed from the filter as long as they still are hot. They should stay strained until they cool down, to avoid deformations.**

5. FILTER MAINTENANCE

- Before every filtration wash the filter and rinse out well
- At the end of the filtration press the rest liquid out with water.
- Put a bowl under the filter plates for the collection of liquid.
- Untight the filter by using the threaded spindle, remove the carton inlays, clean and wash the plates.
- Wash all valves and taps
- Unscrew the sight glass and wash it out
- Unscrew the discharge manometer and brush it out through the inlet branche.
- For washing the filter use dishwashing-liquid as used in food industry

5.1. INTERRUPTION OF FILTRATION

- This should be avoided, if possible. If really necessary then close inlet and discharge valve and let the filter strained.

5.2. CARE AND PROTECTION

- The used layers have to be immediately removed from the plastic plates to avoid they drying up.
- Carefully clean the plates with a soft brush. Don't use metalbrushes or similar tools.
- If the leftover of the carton layers are hard to remove, lay them in very hot water and then brush the plates out. Instead of a metalbrush you can use a domestic brush. Then wash the plates out well because the brush can't reach every coin.
- The not used plastic plates have to be stacked in laying position on a flat surface and divided by wave carton.
- Don't remove the plastic plates while they are in hot state. They have to cool down in strained state to avoid deformations.