

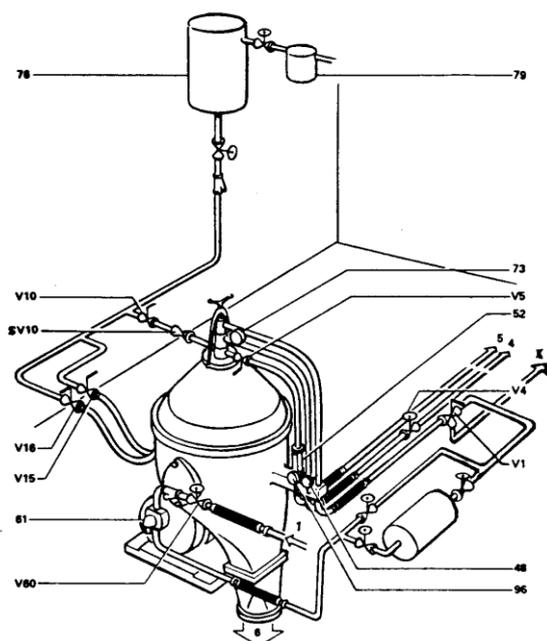
## Alfa-Laval Purifier

起動，停止步驟

### BEFORE START

#### Check that

1. Correct gravity disc is fitted in the machine.
2. Inlet parts and frame hood are clamped by clamp screw and hinged bolts.
3. Brake is released.
4. Oil level in worm gear housing is correct.
5. Operating water tank is kept filled and shut-off valves are open.
6. Recirculation to tank or heater has been provided for. Regulating valve V60 before the pump is somewhat open to prevent pump from running dry.
7. Correct nipple in respect to the throughput is fitted in the inlet pipe (this applies to types WHPX 507 and WHPX 508 only)



1 Dirty oil inlet	V1 Alternative valve for dirty oil
4 Clean oil outlet	V5 Ball valve in water outlet
5 Water outlet	V10 Ball valve for sealing and displacing water
6 Sludge outlet	SV10 Regulating valve for displacement water
48 Flow meter	V15 Valve for opening water
52 Sight glass	V16 Valve for closing water
61 Pump	V60 Regulating valve before pump
73 Thermometer	
75 Heater	
76 Operating water tank	
79 Dehardening filter	
96 Pressure gauge	
X Recirculation	

### START

1. Start the motor.
2. If heavy vibration occurs during the run-up, stop machine and check assembly and cleaning of bowl.
3. Check the speed.
4. Close the bowl by opening valve V<sub>16</sub> for closing and makeup water.
5. Provide the liquid seal by closing water valve V<sub>5</sub> and opening valve V<sub>10</sub> for feed of sealing water for a time of 60 seconds.
6. Open water valve V<sub>5</sub>. Normally a small amount of water will now leave by outlet 5.
7. Set alternative valve V<sub>1</sub> to feed of dirty oil to the machine.
8. Adjust to suitable throughput by means of regulating valve V<sub>60</sub> located before the pump (observe flow meter 48).
9. Check the separating temperature (observe thermometer 73).

10. Adjust to back pressure ( $P = \dots\dots\dots$  bar) by means of valve  $V_4$  and pressure gauge 96.

### **SLUDGE EJECTION DURING OPERATION**

1. Close valve  $V_5$  in water outlet.
2. Open valve  $V_{10}$  for 40 seconds.
3. The oil is displaced.
4. When 20 seconds have lapsed, open valve  $V_{15}$  for opening water. Close  $V_{15}$  as soon as the ejection sound is heard. Normally, this will occur within 5 seconds.
5. When 40 seconds have expired, close  $V_{10}$  and open  $V_5$ .
6. A small quantity of water should now leave by outlet 5 (observe sight glass 52).
7. Observe operation and separating result and repeat sludge ejection at suitable intervals, e.g. every hour.

### **STOPPING**

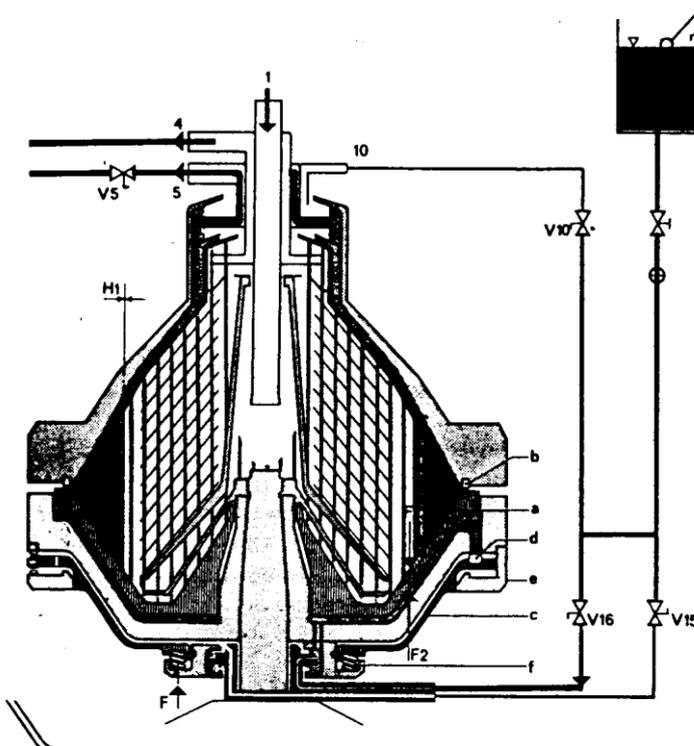
1. Switch off the heater etc.
2. Shut off the oil feed to the machine by setting valve  $V_1$  to recirculation.

#### **Effect some ejections**

3. Close  $V_{16}$ .
4. Close  $V_5$ . Open valve  $V_{10}$  for feed of displace water for 60 seconds. Open valve  $V_5$ . Empty the bowl completely by keeping the valve  $V_{15}$  open until the ejection sound is heard - then wait for 10 seconds and repeat the procedure until no ejection sound follows (normally 4 - 6 times).
5. Stop the motor.
6. Apply the brake.
7. Never loosen hinged bolts etc. until the bowl has stopped completely. Then release the brake.

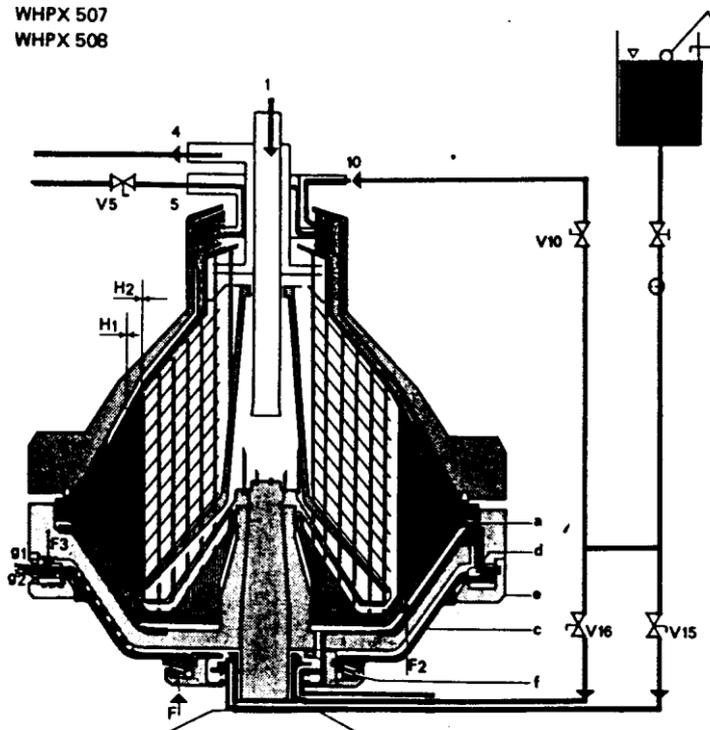
## Alfa-Laval Ejection Function

### Before Ejection



1. Valve  $V_{16}$  open.
2. Compartment under sliding bowl bottom (a) filled.
3. Sliding bowl bottom (a) is pressed against seal ring (b) as force  $F_2$  is greater than  $F_1$ .
4. Operating slide (c) keeps drain valves (d) closed by means of the force  $F$  produced by coil springs (f) and the hydraulic piston of WHPX 507 and WHPX 508.
5. Valve  $V_5$  is opened.
6. Separation is going on and solids are moving towards the bowl wall.

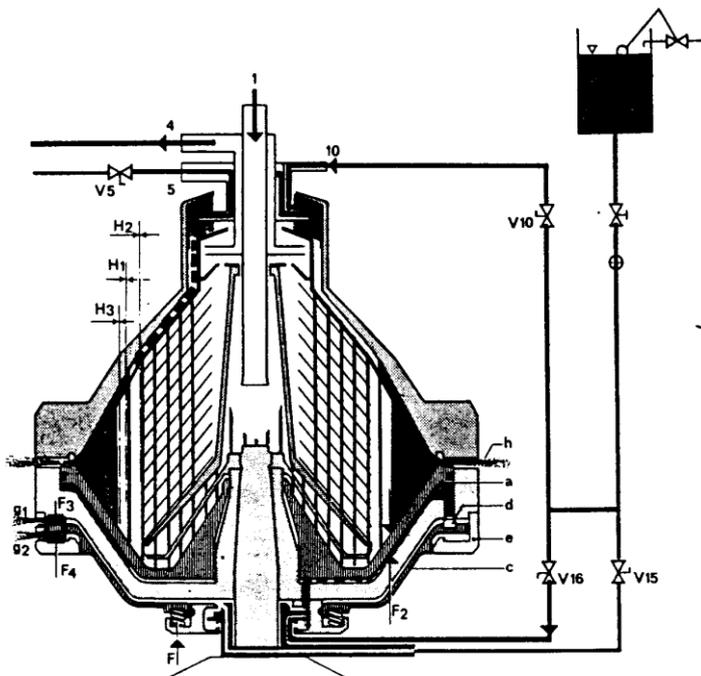
WHPX 507  
WHPX 508



### Initiation of Ejection

1. Valve  $V_{16}$  open.
2. Valve  $V_5$  is closed.
3. Valve  $V_{10}$  is opened for displacement of oil-water interface  $H_1$  towards bowl centre - position  $H_2$ .
4. Valve  $V_{15}$  is opened.
5. Chamber at dosing ring (e) above operating slide (c) is filled.

6. Liquid force  $F_3$  exceeds spring force  $F$  or the force of the hydraulic piston.
7. Operating slide (c) moves downwards, thereby uncovering drain valves (d).
8. Compartment below sliding bowl bottom (a) is drained and force  $F_2$  decreases.
9. Low-rate outflow through nozzle  $g_1$ .
10. Overflow begins to the chamber at dosing ring (e) below operating slide (c).

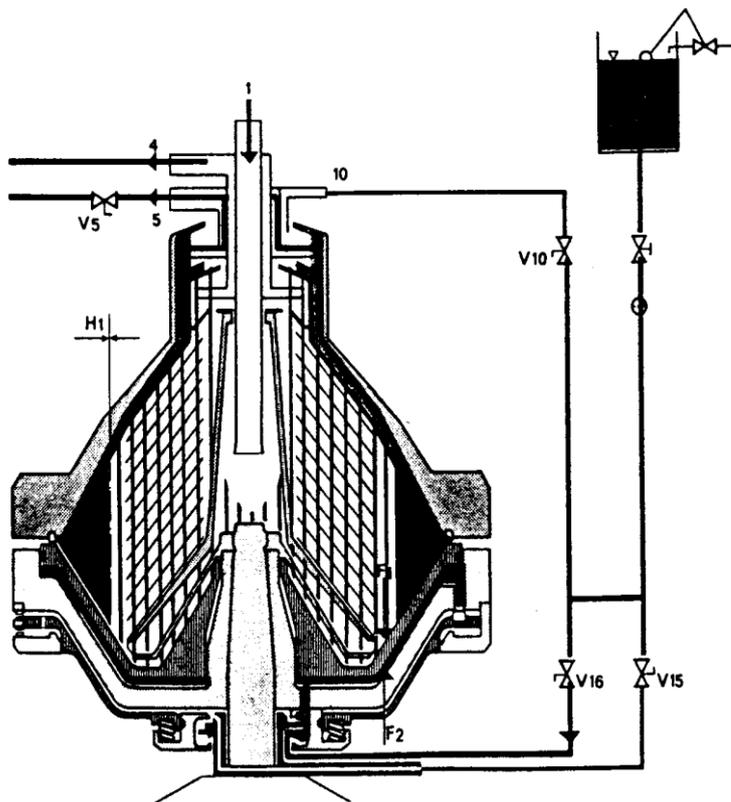


## Ejection

1. Compartment below sliding bowl bottom (a) is drained and force  $F_2$  becomes smaller than  $F_1$ .
2. Sliding bowl bottom (a) moves downwards and ejection of sludge and water takes place through ports (h) in the bowl wall. The interface ( $H_2$ ) moves towards the bowl wall to position ( $H_3$ ).
3. Valve  $V_{15}$  is closed.
4. The chamber in dosing ring (e) below operating

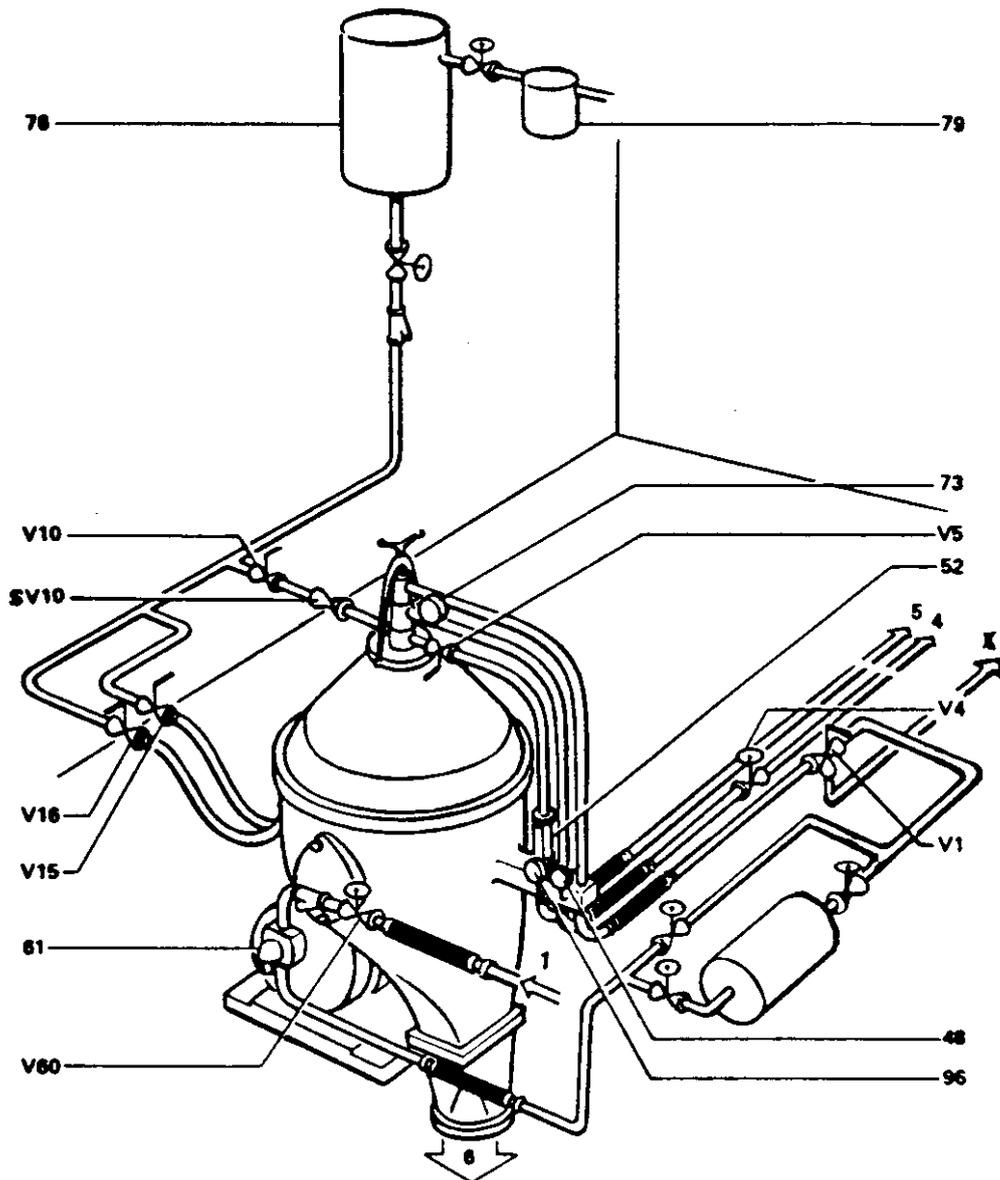
slide (c) has become filled and force  $F_4$  together with spring force  $F$  or the force of the hydraulic piston, is greater than  $F_3$ .

5. The operating slide is moved upwards and closes drain valves (d).
6. The chambers in dosing ring (e) are drained through nozzles  $g_1$  and  $g_2$ .
7. The compartment below the sliding bowl bottom (a) is filled from operating water tank (76). Force  $F_2$  increases.
8. The separating space above the sliding bowl bottom (a) is filled. Force  $F_1$  increases. Liquid seal is supplied through valve  $V_{10}$ .



### After ejection

1. Force  $F_2$  now exceeds  $F_1$ .
2. Sliding bowl bottom (a) is forced into closing position.
3. The compartment below and the separating space above the sliding bowl bottom are full.
4. The interface moves back from position ( $H_3$ ) to ( $H_1$ ).
5. Valve  $V_{10}$  is closed.
6. Valve  $V_5$  is opened.
7. Any excess water leaves the bowl by outlet 5.
8. Ejection has been completed.



- |    |                      |      |   |
|----|----------------------|------|---|
| 1  | Dirty oil inlet      | V1   | Alternative valve for dirty oil             |
| 4  | Clean oil outlet     | V5   | Ball valve in water outlet                  |
| 5  | Water outlet         | V10  | Ball valve for sealing and displacing water |
| 6  | Sludge outlet        | SV10 | Regulating valve for displacement water     |
| 48 | Flow meter           | V15  | Valve for opening water                     |
| 52 | Sight glass          | V16  | Valve for closing water                     |
| 61 | Pump                 | V60  | Regulating valve before pump                |
| 73 | Thermometer          |      |   |
| 75 | Heater               |      |   |
| 76 | Operating water tank |      |   |
| 79 | Dehardening filter   |      |   |
| 96 | Pressure gauge       |      |   |
| X  | Recirculation        |      |   |