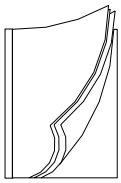
INSTRUCTION BOOK

CENTRIFUGAL SEPARATOR RE85V

YEAR / REVISION: 2009/0

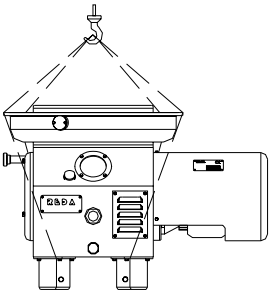
CHAPTER *A*

–General information



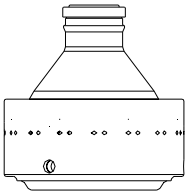
CHAPTER *B*

–Installation



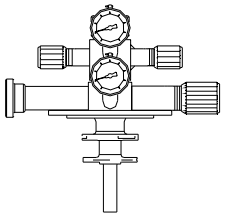
CHAPTER *C*

–Separator start–up



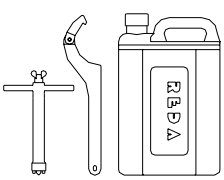
CHAPTER *D*

–Operating system



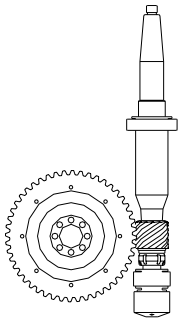
CHAPTER *E*

–Maintenance and service



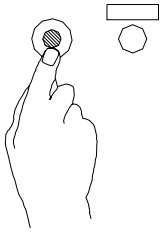
CHAPTER *F*

–Mechanical drive



CHAPTER *G*

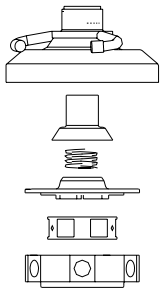
–Running defects



CHAPTER *H*

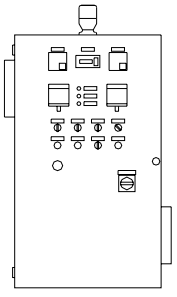
–Component list

–Spare parts



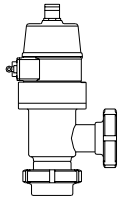
CHAPTER *I*

–Control board



CHAPTER *L*

–Optionals miscellaneous



A. GENERAL INFORMATION

A/1. Important note for the utilizing and maintenance.

REDA separators are special machines, rotating at high speed and operating with maximum safety and long life, provided that the instructions contained in this book are complied with.

We suggest to get our machines checked periodically by our technicians to always guarantee perfect efficiency conditions.

No intervention, and particularly disassembling of the covers, must be effected until the bowl has completely stopped.

A/2. Before every starting, check that:

- The bowl coupling ring should be screwed in, and with the ciphers line up.
- The covers and the skim plate set should be fixed to the frame.
- The nut of the plate set should be screwed in.
- Oil level should be just above the half of the oil window.

Feed the machine only with bowl closed, as explained in Chapter C (Separator start-up)

Do not damage the bowl components, by carefully handling and following these rules:

- Shocks and loads on rigid bodies: the components must be rested on wooden surfaces.
- Use only the service tools.
- Always use the disc pressing wrench.
- Do not heat or overheat the components with flame or other systems.
- Always clean the conical surface of the vertical shaft and his seat on the bowl, before the assembling, avoiding lubricants.

We recommend to maintain the correct compression of the disc column adding, if necessary, supplied spare discs.

Periodically drain, from the drain plug, the water present in the oil of the gear box.

Avoid hosing the inside upper part of frame. Clean only with wet sponge or rag.

Check periodically the electric connections and be sure that the earth connection of the machine has been effected.

It is advisable to utilize softened water for the water system (for example softened water from the boiler line): water hardening must be under 15 French degrees. A hard water can close the inlet/outlet holes of above system, putting consequently the separator out of service.

Decant or filter the product to be processed to ensure the best performances of the separator.

Cleaning must be effected after each working.

In case of prolonged stop of the machine, open the bowl, dry and stock it in a dry site.

In case of not perfect running of the machine, please read Chapter G : “Running defects”.

B. INSTALLATION

B/1. The overall dimensions of the machine, for the installation, are indicated in the “installation drawing” following this item.

It is important to comply with the minimum distances from the wall or from a machine to another, to permit the disassembling of the mechanical parts.

B/2. The foundation plate with the cups inserted and the stud bolts tightened, must be buried in concrete in the floor with the suitable anchor bolts, making sure the hubs rise from the floor level for about 1 cm; then level the plate on the 4 hubs.

Pay attention that the writing “OIL” on the foundation plate corresponds to the front of the machine.

After the hardening of the concrete, block the nuts of the anchor bolts then fill the external surfaces of the plate.

B/3. Fit the separator’s feet on the stud bolts (if necessary unloose the screws) and check the level: if necessary insert some shims.

Tighten the foot’s locking screws (Fig. B/1)

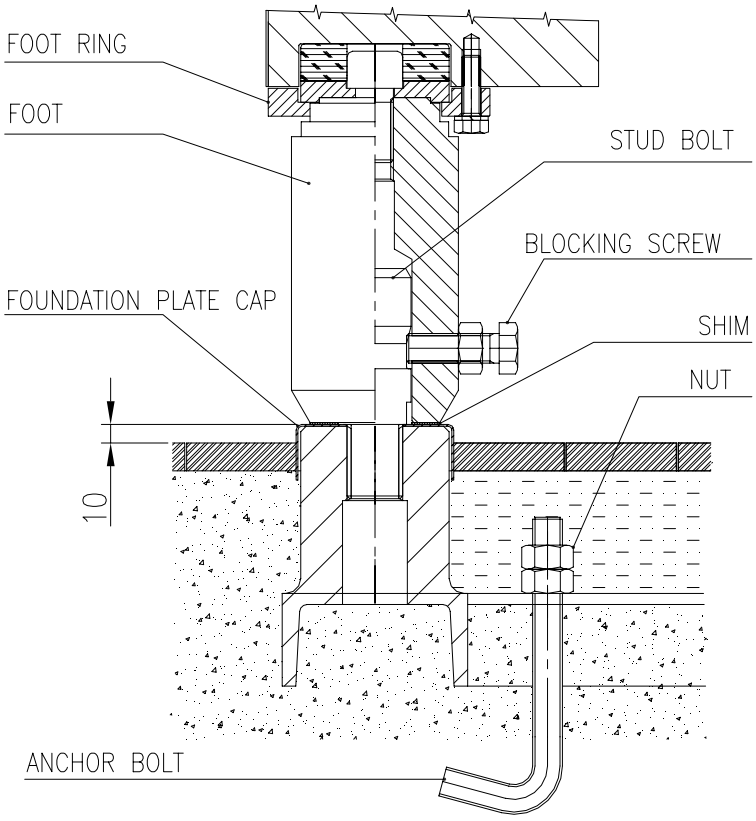


Fig. B/1

B/4. Fill with oil (about 5,5 lt.) through the plug placed on the side of the gears inspection window.

The oil window must be filled just above his half.

B/5. Refer to chapters I, L and provided flow sheets for electrical connections.

B/6. The drive is obtained by a three-phase electric motor that can be started directly from the control panel.

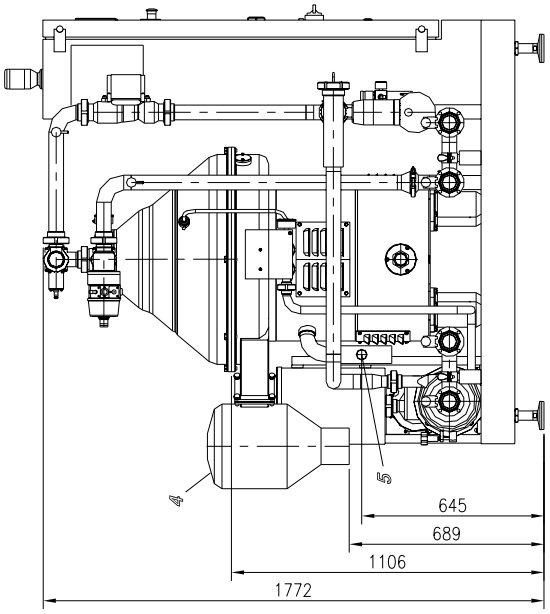
The correct rotation is shown by an arrow placed on the motor: the rotation of the vertical shaft should be clockwise, looking from above.

B/7. For constant partial discharges a water unit group with a balance tank, pump and line filters is provided. The pump deliveries water at a constant pressure (3 atm). The pipeline from balance tank to the separator should consist of 3/4" pipe, with a flexible pipe on the last section (refer to chapter. L).

We recommend to install water balance tank close to the separator and in higher position.

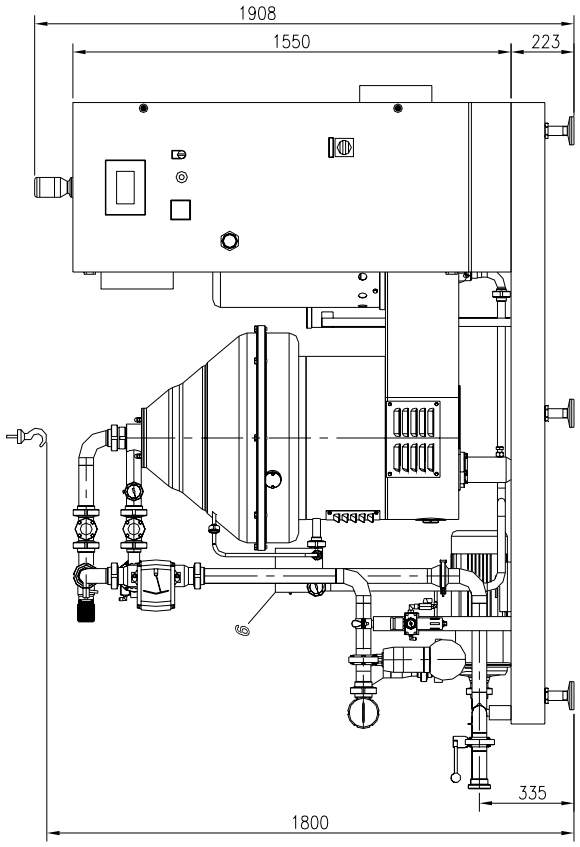
The hourly water consumption changes from 50 to 200 lt/hr depending the number of discharges and the rinsing times.

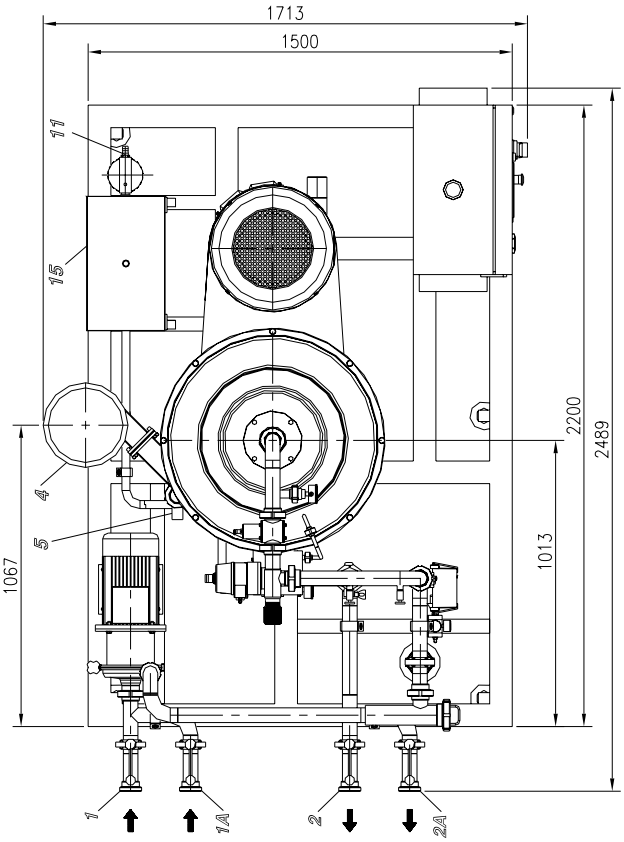
We suggest, furthermore, to use softened water (max.15 French degrees) to avoid lime formation that, closing the holes for the water inlet into the bowl, does not allows the correct operating of the discharge bowl system.

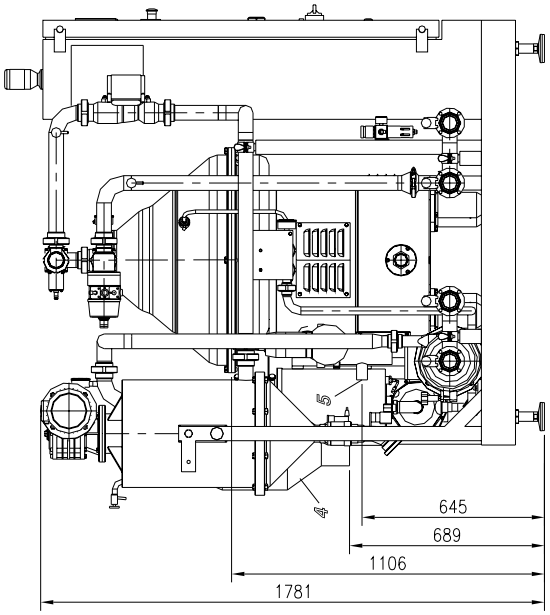


SEPARATOR NET WEIGHT	KG	1610
MOTOR POWER	KW	18.5
BOWL ROTATION SPEED	G/MIN	7000

1A	CIP INLET	DN50
2A	CIP OUTLET	DN50
1	PRODUCT FEED	DN50
2	PRODUCT OUTLET	DN50
4	SLUDGES DISCHARGE	ø129
5	OPERATION WATER DISCHARGE	DN40
6	OPERATION WATER UNIT	
11	OPERATING WATER SUPLY	G3/4
15	WATER BALANCE TANK + PUMP	

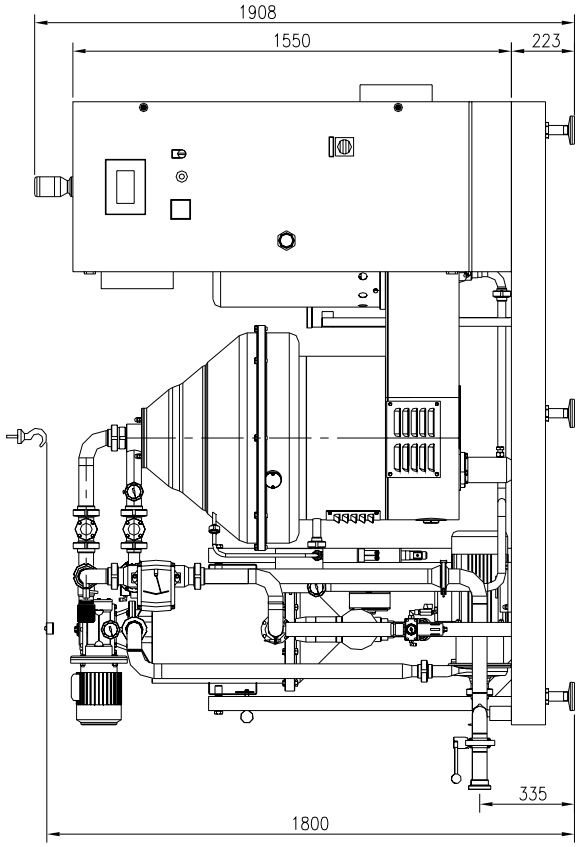


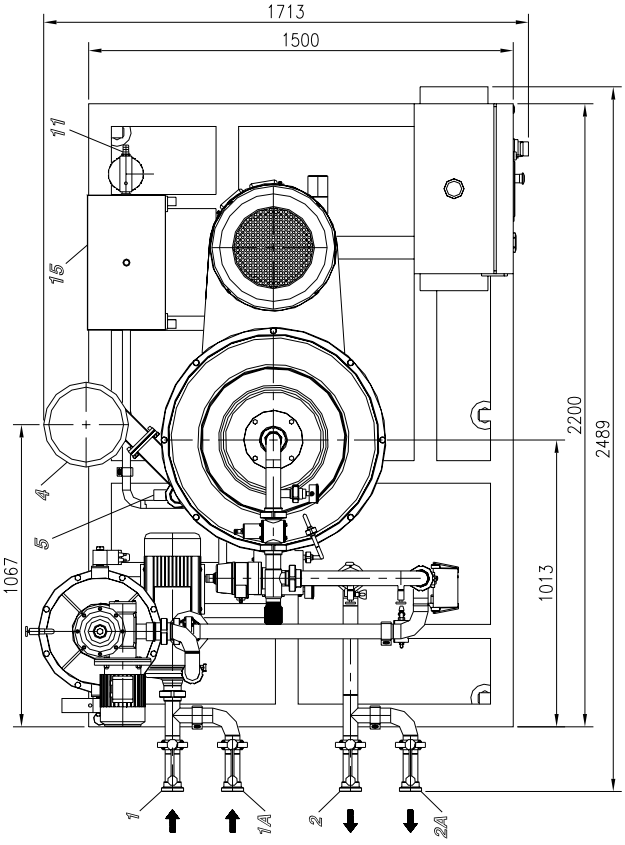




SEPARATOR NET WEIGHT	KG	1690
MOTOR POWER	KW	18.5
BOWL ROTATION SPEED	G/MIN	7000

1A	CIP INLET	DN50
2A	CIP OUTLET	DN50
1	PRODUCT FEED	DN50
2	PRODUCT OUTLET	DN50
4	SLUDGES DISCHARGE	ø129
5	OPERATION WATER DISCHARGE	DN40
6	OPERATION WATER UNIT	
11	OPERATING WATER SUPLY	G3/4
15	WATER BALANCE TANK + PUMP	





C. START-UP

Be sure that gear box has been filled with oil and that what explained in Chapter B has been attended.

In case of prolonged stop of the machine, it is advisable to disassemble the collar cage protection, remove the labyrinth and inject oil in the bearing to avoid damage, or start the separator for few seconds without bowl.

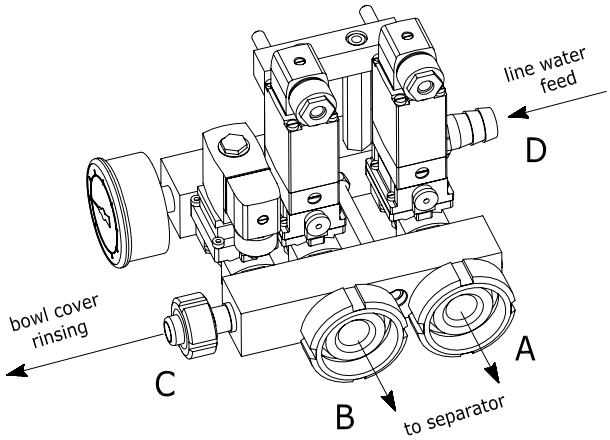


Fig. C/ 1

Checking of the correct connection and operating of the hydraulic control set should be effected as follows: after letting water flow in the feed pipes and before connecting the feed pipes to the separator, operate a partial discharge from the operator panel and check that the solenoid valve operation sequence is as follows:

- water from duct C- water from duct A - water from duct B - water from duct C.

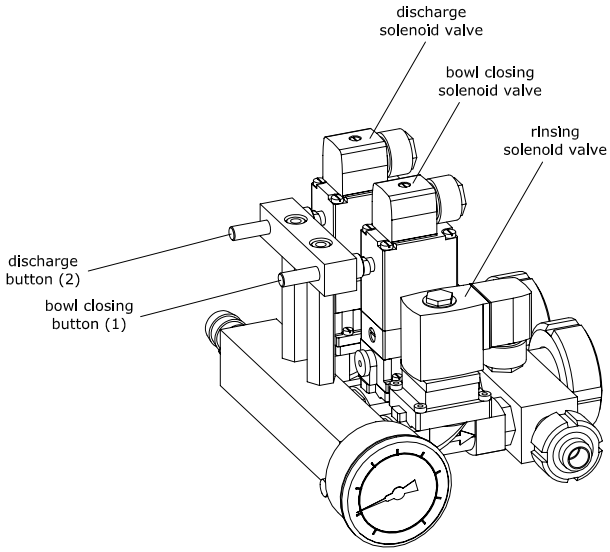


Fig. C/ 2

Connect the ducts to the separator and the electric wiring to the control panel

Manual discharge is operated by pressing buttons 1 and 2.

Discharge is operated by pressing and holding button 1 and quickly pressing button 2.

Button 1 has to be released after about 10 seconds to let the bowl close.

By pressing button 1, water will flow through the lower holes of the collar cover (bowl closing), by pressing button 2 water will flow through the upper holes of the collar cover.

C/2. BOWL ASSEMBLING

C/2.1 Carefully clean the upper conical part of the vertical shaft avoiding the use of lubricants.

We suggest, before the assembling of the items, to carefully clean the parts to be coupled and the threads – check that there are not sizing (burrs) or dents and eventually grind the damaged parts by abrasive cloth.

Also before assembling, spread antisizing grease (use only the grease supplied with the machine) all threads and the coupled parts except the surface where the sliding ring gaskets operate (refer to chapter. H).

The gaskets are already mounted on the bowl, it is advisable to check the exact placement.

During assemblage, pay attention that all ciphers should line up.

The assembling can be facilitated using a hoist of 500 Kg.

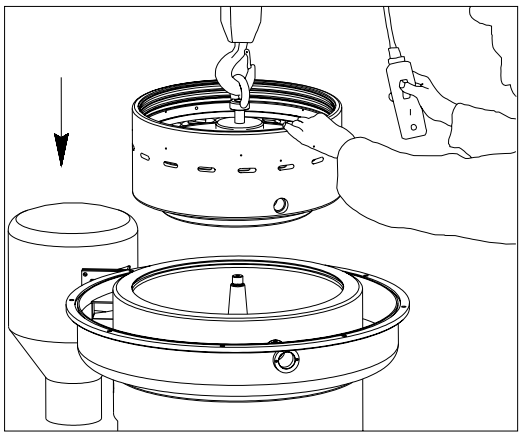


Fig. C/ 3

Lower the bow shell on the separator's base, being careful not to damage the vertical shaft.

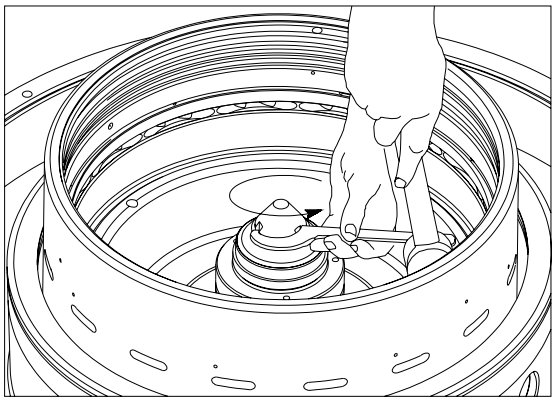


Fig. C/ 4

Tighten the vertical shaft's nut to the bowl shell by turning it counter clockwise.

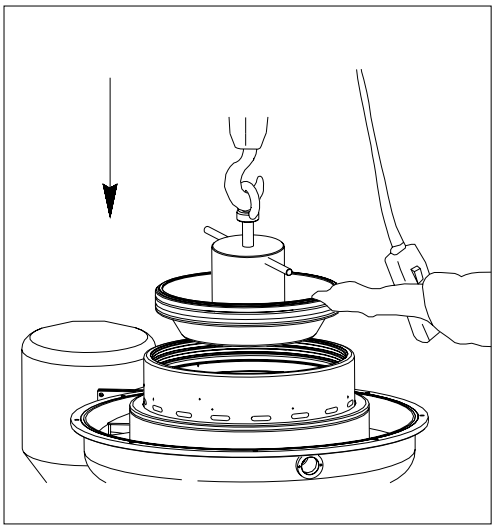


Fig. C/ 5

Fix the sliding ring extracting wrench to the sliding ring and, using a hoist, lower the sliding ring into the bowl shell. Check that the sliding ring gaskets are mounted.

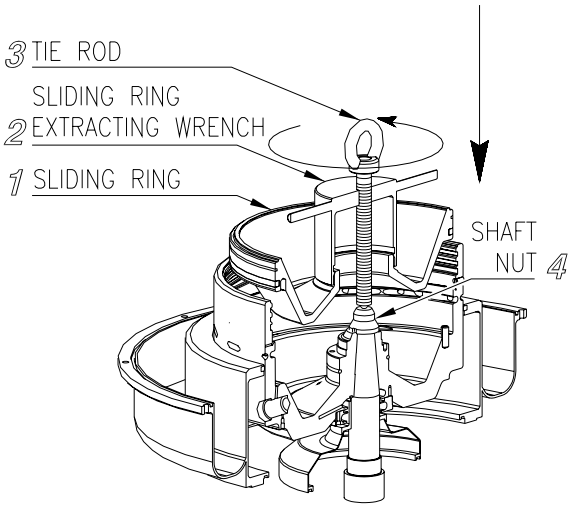


Fig. C/ 6

To assemble the sliding ring, follow this procedure:

1. Tighten the sliding ring extracting wrench (2) to the sliding ring (1)
2. Screw in the tie rod (3) till it comes out from under the sliding ring
3. Place the sliding ring over the bowl bottom, making sure the tie rod rests on the shaft nut (4)
4. While holding the sliding ring in place, unscrew the tie rod.

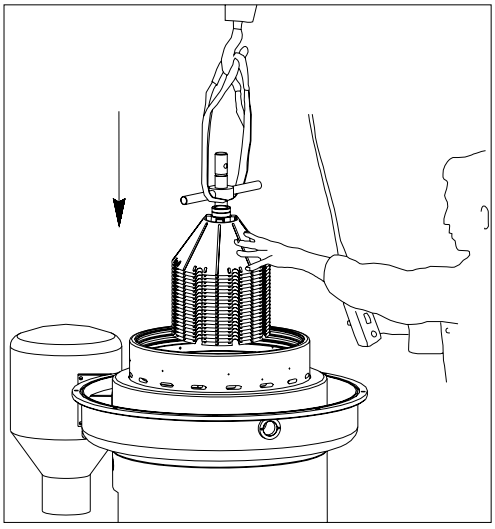


Fig. C/ 7

Screw the supplied eyebolt to the lantern and, using a hoist, lower the disc stack in the bowl shell, making sure that the lantern and shaft's nut are correctly coupled. Also make sure the the holes in the discs are correctly lined up.

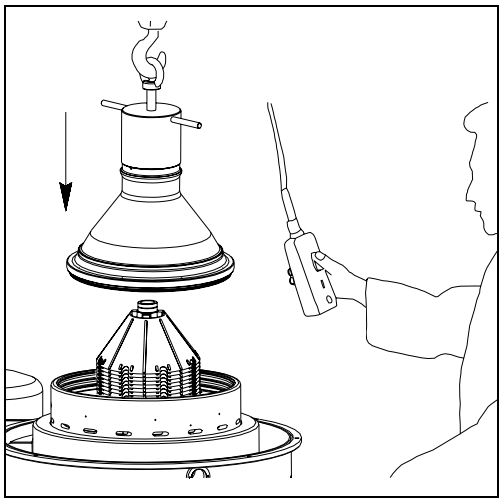


Fig. C/ 8

Fix the cap to the supplied cap extracting wrench and, using a hoist, place the cap on the sliding ring in the bowl shell. Check that the cap gaskets are mounted.

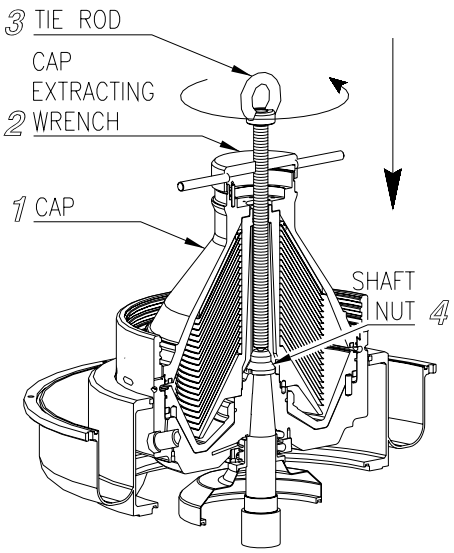


Fig. C/ 9

To assemble the cap, follow this procedure:

1. Tighten the cap extracting wrench (2) to the cap (1)
2. Screw in the tie rod (3) till it comes out from under the cap
3. Place the cap over the bowl bottom, making sure the tie rod rests on the shaft nut (4)
4. While holding the cap in place, unscrew the tie rod.

C/2.2 Always use the compressed discs wrench to assemble the bowl.

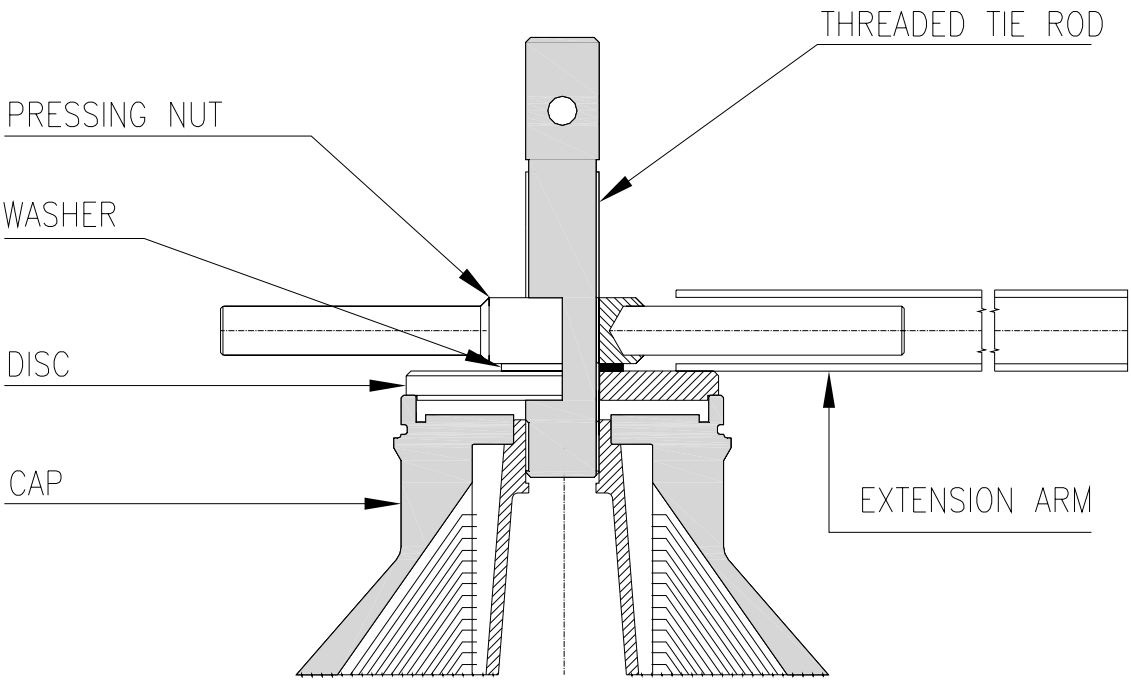


Fig. C/ 10

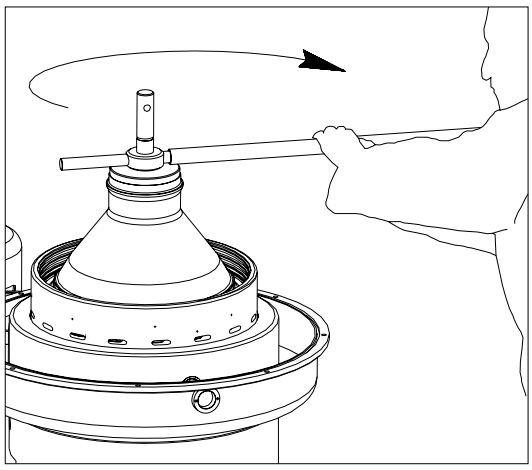


Fig. C/ 11

Place the disc on the bowl top, screw on the knurling screw up to the blocking and then screw on the pressing nut with handles, using the extension arm supplied with the machine.

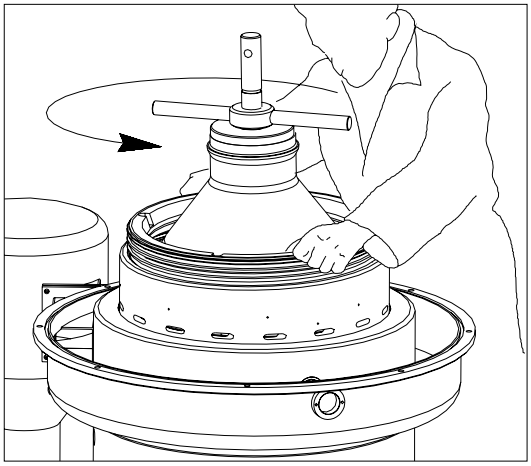


Fig. C/ 12

Screw on the coupling ring (turning counter clockwise) on the bowl shell and, without effort, the sign on the ring should arrive up to 10 ÷ 15 mm from the sign on the bottom bowl (Fig. C/14). If the distance is greater, it must be verified the exact assembling of the bowl and the cleaning of the intermediate discs or it is necessary to take away a disc; if the distance is lower, it means that the discs column is not enough compressed: add a disc more (the machine is equipped with 2 spare intermediate discs).

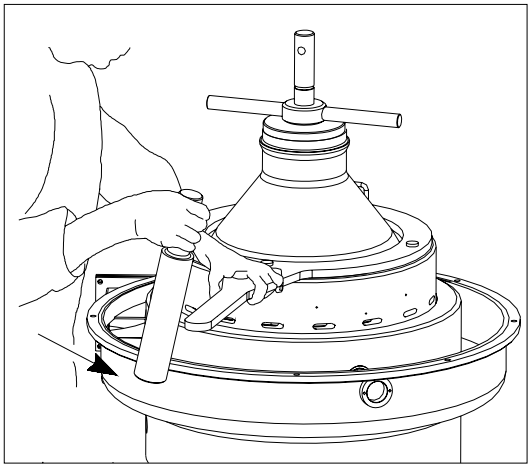


Fig. C/ 13

For the complete tightening of the large coupling ring, place the supplied closing ring spanner on the bowl closing ring and beat few soft hammer blows

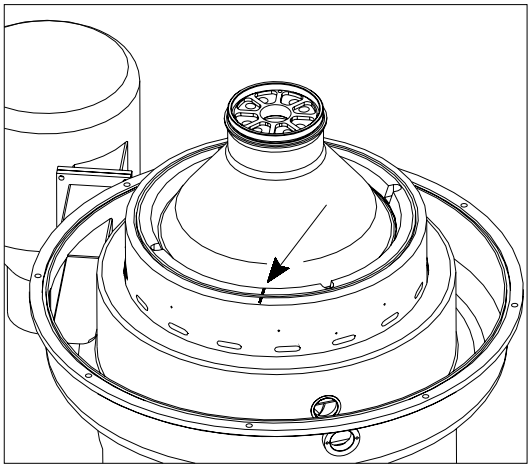


Fig. C/ 14

The bowl is correctly closed when the signs on the bowl closing ring and on the bowl shell are lined up.

C/2.3 Impellers and covers assembling

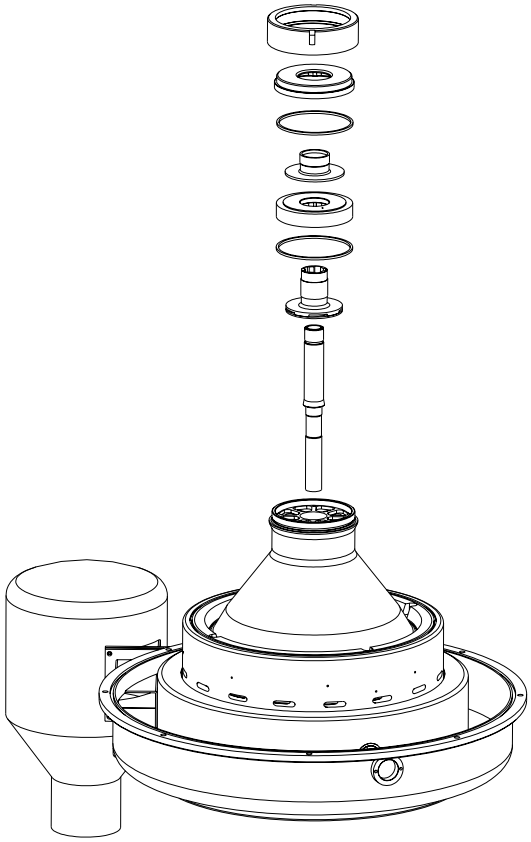


Fig. C/ 15

Mount the feeding sleeve, impellers, gaskets and covers as shown.

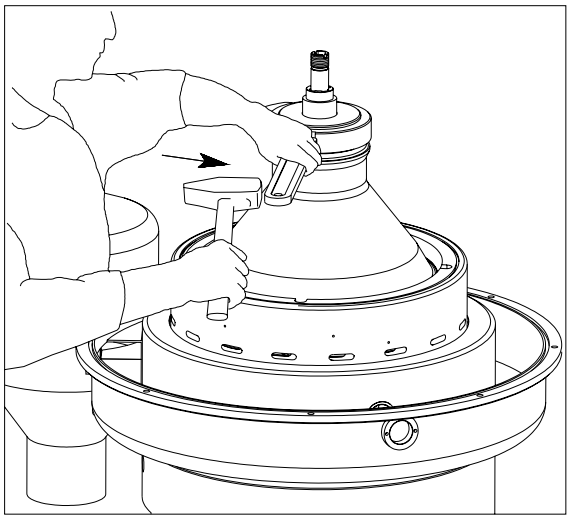


Fig. C/ 16

Tightly lock the bowl with the bowl top locking ring.

C/2.4 Feed and discharge unit assembling

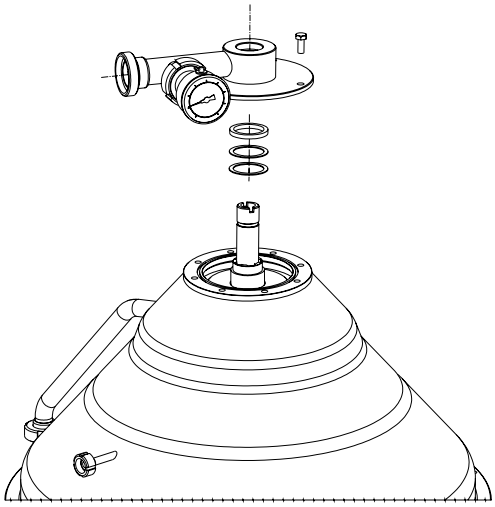


Fig. C/ 17

Mount the feed and discharge unit as shown.

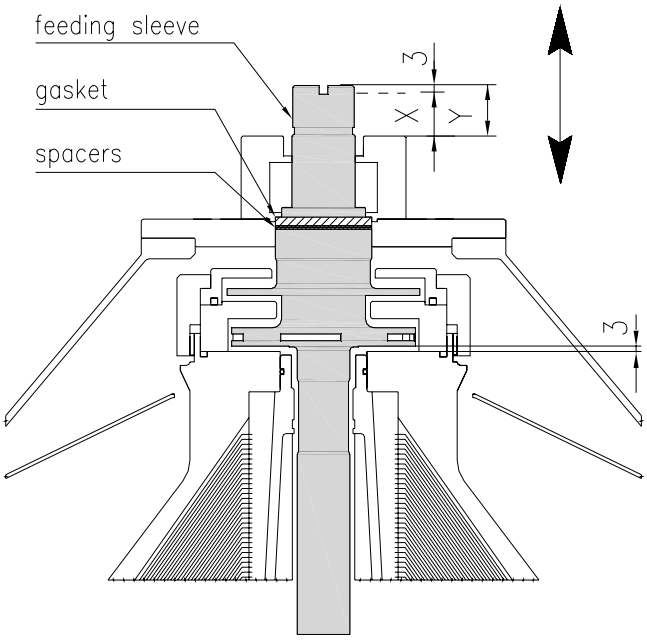


Fig. C/ 18

The impellers adjusting is made in our factory, inserting some stainless steel shims under the lower joint of the feed and discharge unit: it is advisable to check again after each assembling of the bowl.

The procedure is to measure the height difference between the product impeller in lower position and in completely lifted position (pulling on the sleeve): the difference must be about 3 mm..

If the difference is less, remove some shims, if higher add some shims.

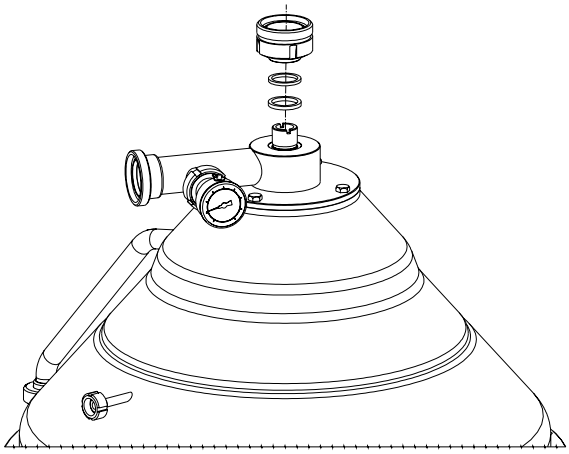


Fig. C/ 19

Mount the feeding sleeve nut and gaskets.

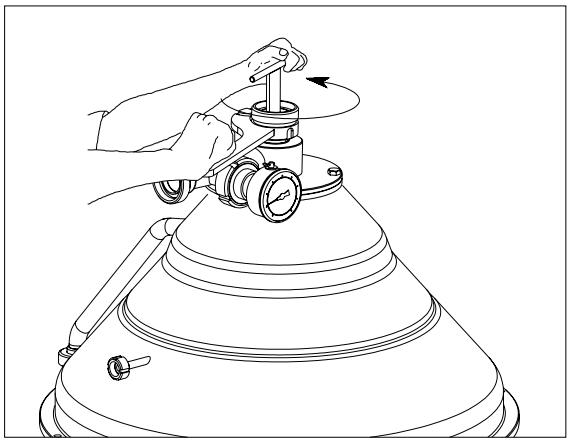


Fig. C/ 20

Block the unit by the locking nut.

D. OPERATING SYSTEM

Provided the necessary connections to the pipeline, be sure that all the parts are tightened. To start operation, select the desired cycle:

- Partial prod. = alternation between partial and total discharges
- Total prod. = only total discharges are operated

Then adjust valves as follows:

D/1.1 Must and wine clarification (model "V") – Fig. D/1

The choice of the cycle (Partial= discharge without feeding interruption / Total= discharge with feeding interruption) is done according to the product's solid content (total discharge is recommended when there's high solids content or when the personnel is not sure about their constant quantity).

Flow rate regulation is done by adjusting the valve (1) at the separator's inlet, being careful to maintain pressure at about 6-7 bar (manometer 3) by adjusting the outlet valve (2).

Clarification improves when decreasing the flow rate.

Discharge has to be operated before the product's clarification (visible from inspection glass) gets worse, in any case in a time interval from 4 to 30 minutes (exceptionally from 3 to 40 minutes).

It's advisable NOT to set the discharge interval under 4 minutes (exceptionally 3 minutes) because the cleaning efficiency decreases when increasing the number of discharges.

Fouling times lower than 3 minutes require a flow rate reduction.

The feed pump must be wired to the control board because during total discharge it will be stopped.

D/1.2 Sparkling wine clarification (model "S") – Fig. D/1

Sparkling wine treatment doesn't differ from normal wine except that the back pressure can be increased up to 10-11 bar.

Discharge by-pass (if supplied) recycles the product until optimal clarification is reached. By-pass time is regulated as follows (cycle choice: manual-0-automatic):

- Select manual cycle until the desired level of clarification is reached;
- Then select automatic cycle;
- Adjust by-pass time on control panel.

By-pass time must be adjusted according to the desired clarification level to be reached after discharge.

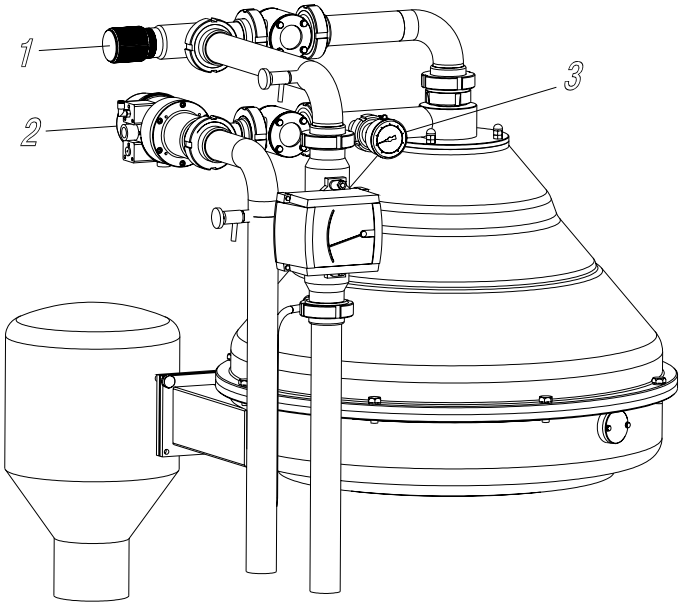


Fig. D/1

D/1.3 Auto-programming system (model "AP") – Fig. D/2

The auto-programming system (AP) allows discharge to be carried out when the sludge chamber is actually full.

This system employs the treated product to detect the sludge chamber's filling level.

AP system is recommended especially when the product to be treated is highly fouling (eg. wines at the end of fermentation and wines that are being clarified).

When treating must it's advisable to operate discharges before the AP system intervention so not to have too concentrated sludge, which is difficult to be discharged.

To use the AP system, follow this procedure:

- After having started the separator and fed the product, adjust the valve (1), being careful not to exceed 6 atm (manometer 2)
- Activate AP function from operator panel

Discharges take place when pressure on the AP manometer (3) falls below a pre-set threshold level (usually 1,5 atm).

Production timer works independently from AP system, so at the end of production timer's countdown a discharge will take place (for safety reasons the timer can be regulated to intervene even after the AP system has stopped).

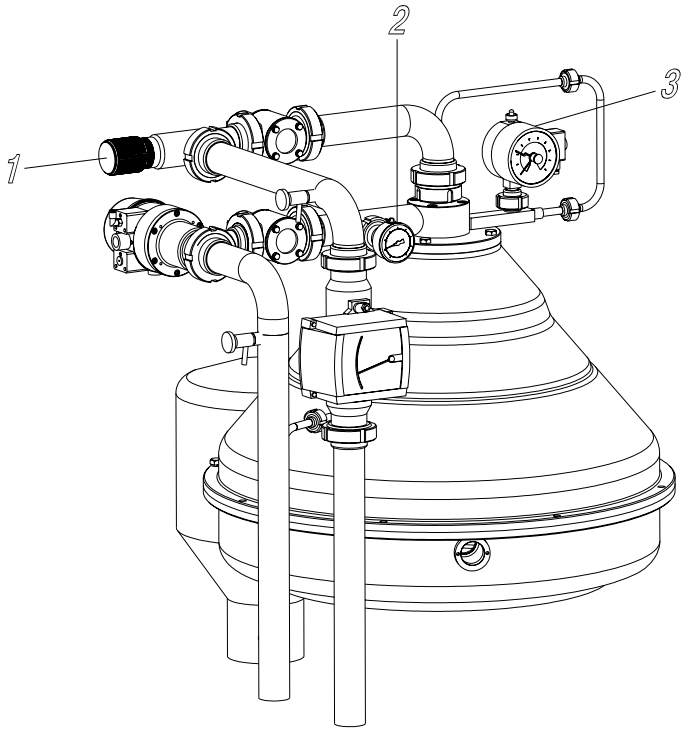


Fig. D/2

D/2. Cleaning

The separator must always be cleaned before stopping.

Cleaning is automatic and is operated by selecting “CIP” cycle from operator panel (a discharge is operated every 5 minutes).

Rinsing is done with cold water for approximately 20 minutes.

Every 4-5 days do a chemical washing with 2% soda solution, according to the following cycle:

phase	fluid	temperature	time
1st rinsing	water	room temperature	10 minutes
basic washing	2% soda solution	70°-75°C	20-30 minutes
final rinsing	water	room temperature	10 minutes

D/3.1. Discharge time regulation

The separator allows sludge discharge at preset intervals with constant discharged volume. Adjusting of the discharged volume is done as follows:

- Make sure the CIP cycle is NOT selected: this way rinsing water will not mix with sludge to be discharged
- put a graduated bucket under the sludge discharge pipe to measure the total discharged liquid quantity.
- operate a discharge

The discharged product quantity must be about 10-12 litres.

Increase or decrease the discharge time on discharge timer step by step if the discharged volume is lower or higher.

D/3.2. Working time regulation

Working time regulation is done according to the product' solid content and the desired clarification rate. Working times may vary as follows:

- musts: 3-5 minutes
- fine fermentation wines: 5-15 minutes
- pre-clarified wines: 10-20 minutes
- sparkling wines: 20-60 minutes

At lower capacities, working times may increase.

D/4. Separator stopping

We recommend to stop the separator only after cleaning it. When the CIP cycle is completed, stop the feed pump.

It's important that the separator is completely empty when stopping: to empty the bowl, operate some discharge.

After the discharge, stop the separator motor, the operating water pump (if supplied) and cut off the power supply (general switch).

If strange vibrations appear while stopping the separator, turn on the operator panel (general switch), start the separator motor and start the operating water pump (if supplied), then operate a total discharge (vibrations are caused by water in the bowl).

While stopping, the separator may suck up stagnant fluid in the piping: make sure that they are completely empty or install a cut-off valve next to the separator and close it before carrying out the stopping procedure.

Allow the separator to stop without using the brake, which should only be used in case of need.

E. PERIODICAL MAINTENANCE

E/1. How to disassemble the bowl

The bowl must be periodically disassembled (at least every 6 months or every 1,000 running hours) for the replacement of the rubber gaskets.

The bowl must be completely stopped before beginning the maintenance.

After disassembling feed and discharge unit and covers , carry out to disassemble as shown in Fig. E/1-13.

We recommend using the supplied disc pressing wrench for bowl closing ring removal.

FOR REASSEMBLAGE, FOLLOW THE INSTRUCTIONS ON CHAPTER C.

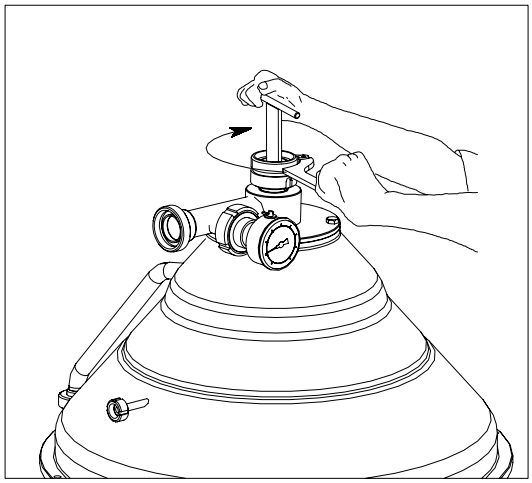


Fig. E/ 1

Disassemble the feed and discharge unit.
Turn the locking ring clockwise.

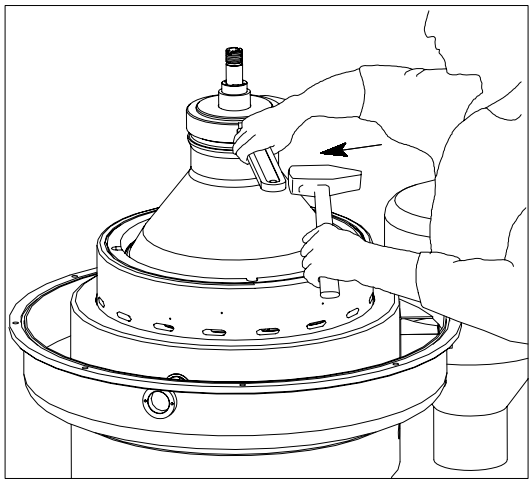


Fig. E/ 2

Unscrew the cap closing ring by turning clockwise.

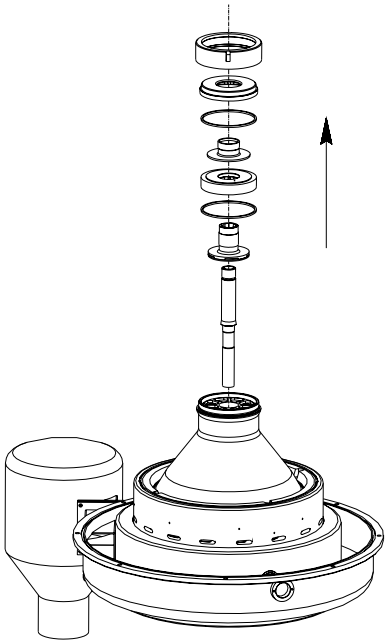


Fig. E/ 3

Remove the covers, impellers and feeding sleeve as shown.

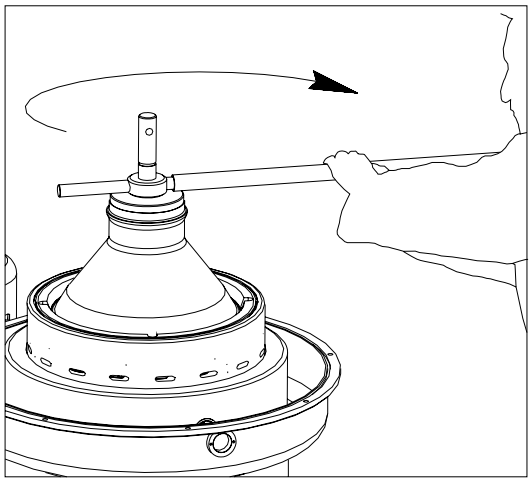


Fig. E/ 4

To remove the bowl closing ring, first press down the cap and disc stack with the supplied disc pressing key.

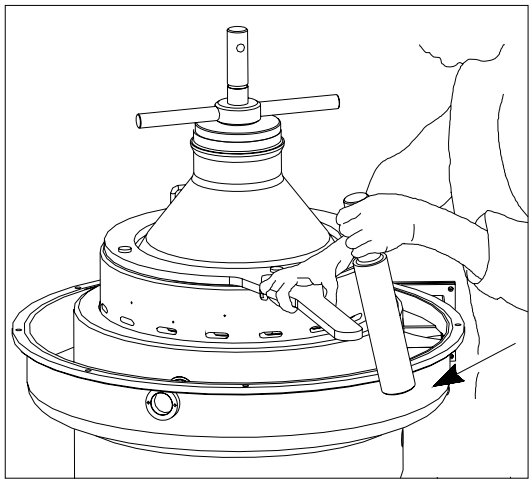


Fig. E/ 5

To loosen the bowl closing ring, place the supplied large ring spanner on the bowl closing ring and beat a few hammer blows in clockwise motion.

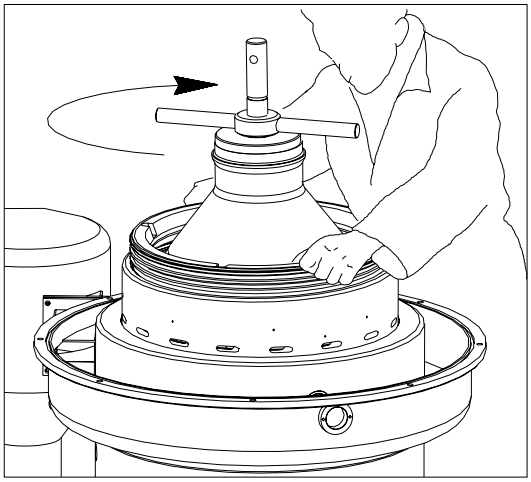


Fig. E/ 6

Completely unscrew the ring by turning clockwise

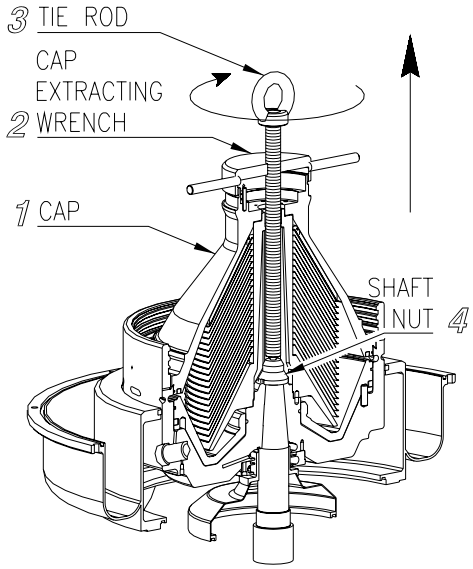


Fig. E/ 7

For bowl top removal, follow this procedure:

1. Fasten the bowl top extracting wrench (2) to the bowl top (1);
2. Fasten the threaded tie rod (3) to the sliding ring wrench until the tie rod touches the shaft nut (4)
3. Further tighten the tie rod, this way the bowl top lifts up

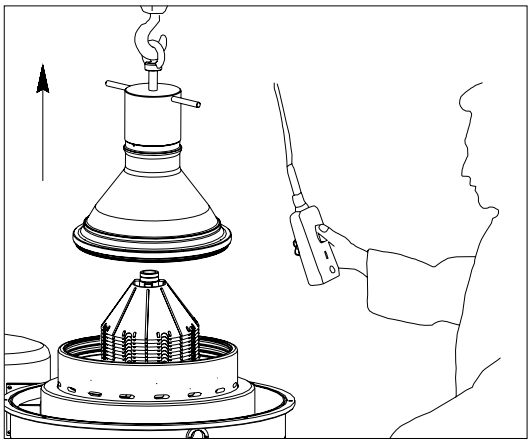


Fig. E/ 8

Fix the cap extracting wrench to the cap and lift it with a hoist.

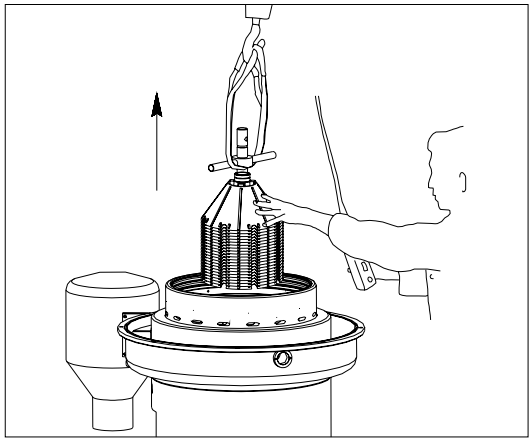


Fig. E/ 9

Fix the supplied eyebolt to the lantern and lift it with a hoist.

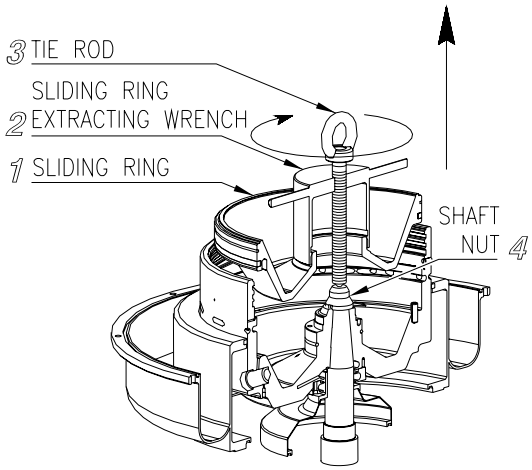


Fig. E/ 10

For sliding ring removal, follow this procedure:

1. Fasten the sliding ring wrench (2) to the sliding ring (1);
2. Fasten the threaded tie rod (3) to the sliding ring wrench until the tie rod touches the shaft nut (4)
3. Further tighten the tie rod, this way the sliding ring lifts up

Don't try to remove the sliding ring by simply pulling it, because this may cause damage to the separator.

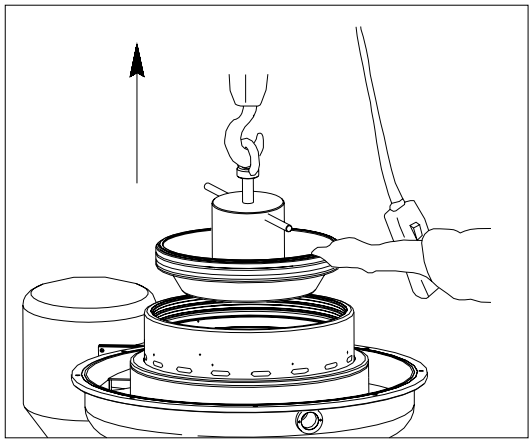


Fig. E/ 11

Fix the sliding ring extracting wrench to the sliding ring and lift it with a hoist.

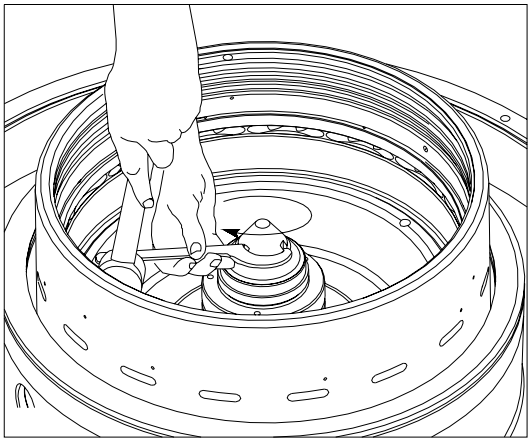


Fig. E/ 12

Unscrew the vertical shaft's nut by turning clockwise.

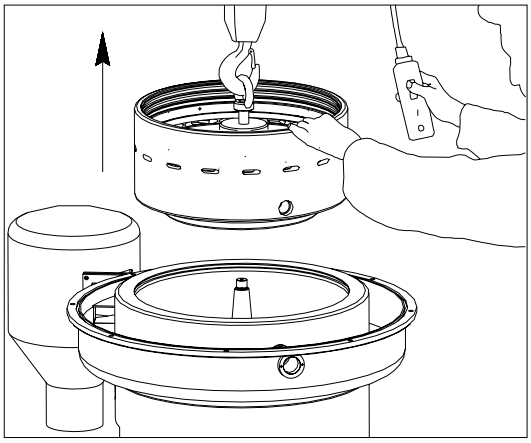


Fig. E/ 13

Fix the bowl shell lifter to the bowl shell and lift it with a hoist.

E/2. Gasket replacing

Replace the bowl top nylon gasket only if it is damaged for more than 50% of its surface.

- Cut the nylon gasket by a screwdriver, that needs also to extract it (Fig. E/14-15).
- Clean carefully the gasket seat, open the orifices, place the new gasket over the seat, knock with a plastic hammer all around the circumference (Fig. E/16).
- The gasket must be inserted 1-1,5 mm inside the hedge of the seat by an help of a piece of old gasket (Fig. E/17).

If the new nylon gasket size is different of the seat size the reason is humidity.

If size is smaller heat the gasket with steam, if larger be careful to insert it in four points at same distance all around the circumference.

The seats of the gaskets of the disc carrier and sliding ring must be accurately cleaned and dried before inserting the new gaskets.

The gasket must enter completely in the seats (if necessary, force it in by beating it with a rubber hammer), otherwise reassembling the bowl could be difficult.

DON'T USE GREASE OR OIL FOR GASKET INSERTION.

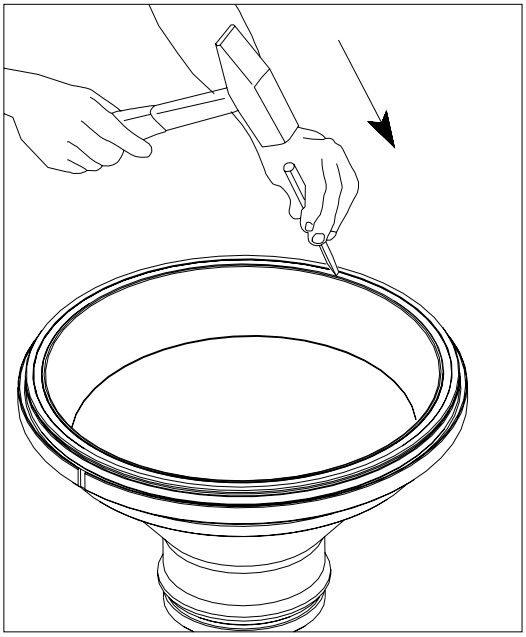


Fig. E/14

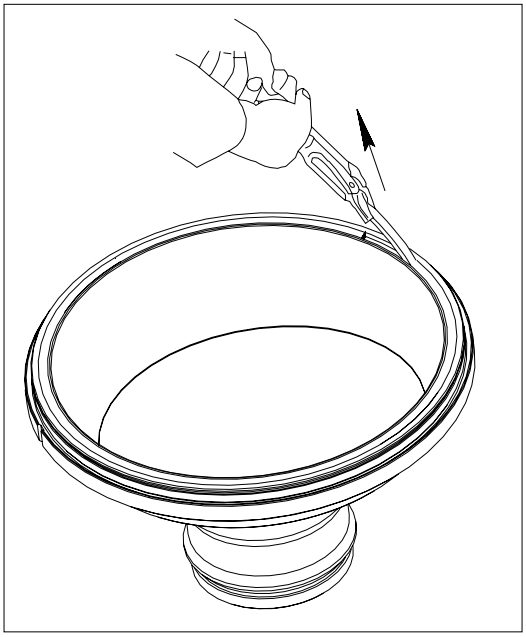


Fig. E/15

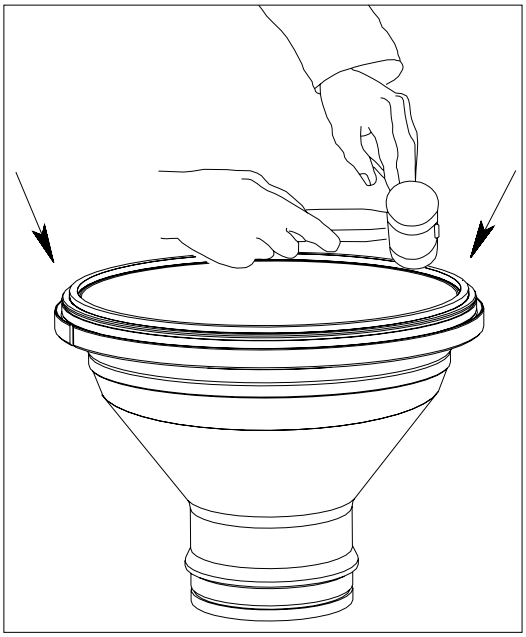


Fig. E/16

Fig. E/17

E/3. Checking and clearing bowl valve

Remove the cyclone's plug.

With the help of a screwdriver, turn the bowl until the the valve coincides with the cyclone's extraction hole.

Unscrew the valve body with suited spanner (Fig. E/18).

Remove valve piston (Fig. E/19).

Clean the valve, check and if needed, replace the gaskets.

Clean the valve site and check that there are not sizing (burrs) or dents, if needed grind the damaged parts with soft abrasive cloth.

Reassemble the valve as seen in picture F/18.

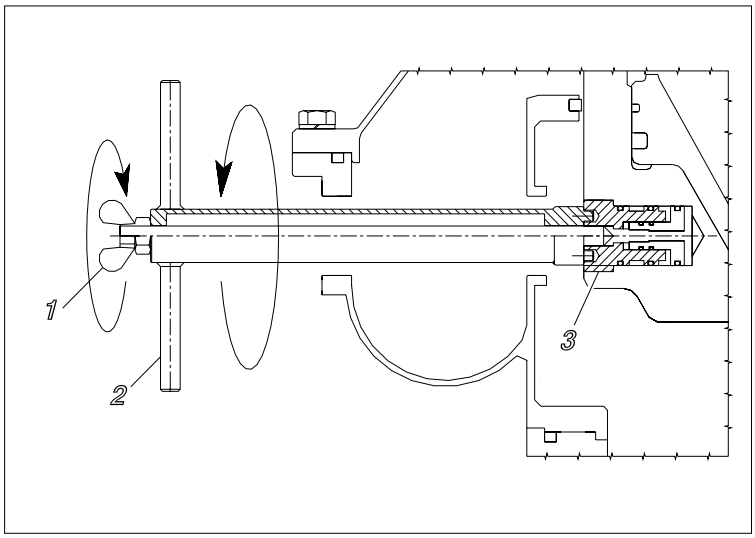


Fig. E/18

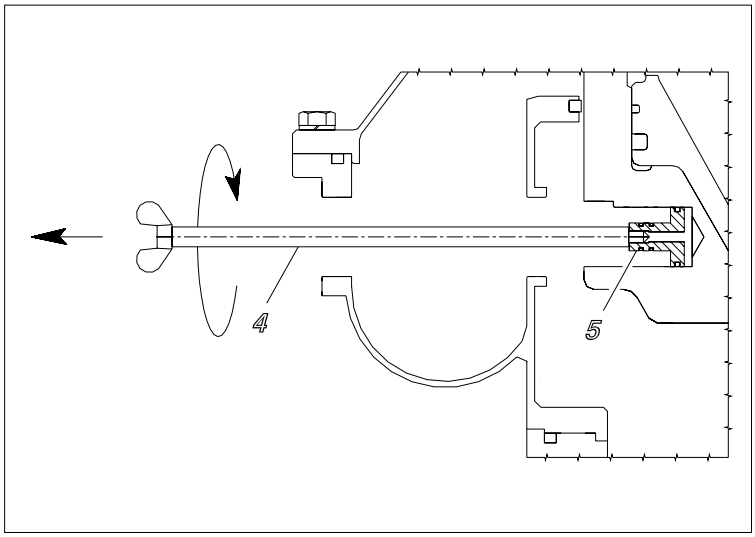


Fig. E/19

E/4. Operating water solenoid valves

When solenoid valves seem to be defective, check if the membrane is closed by lime.

Unscrew the 4 screws fixing the cover Fig. E/20.

Extract the membrane and check that holes are open Fig. E/21.

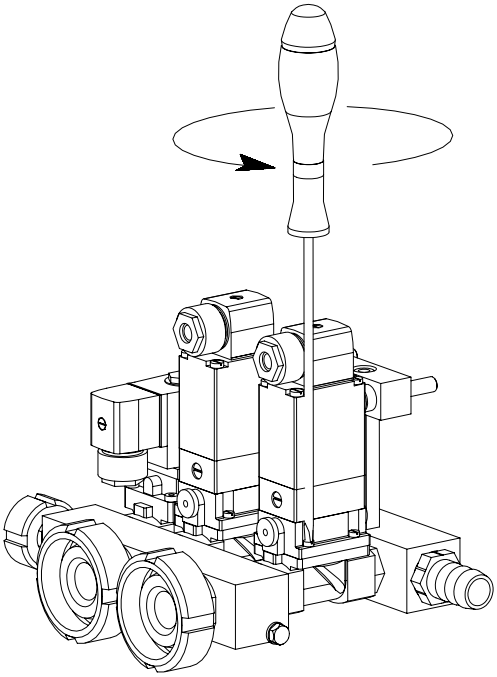


Fig. E/20

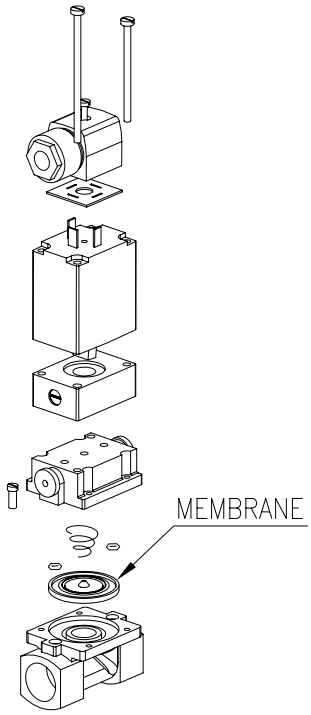


Fig. E/21

E/4 Lubricating oil

Before starting the centrifuge again, use a flexible hose and funnel to fill the oil pan. Use the supplied oil and introduce it through the filling tap.

Around 7 litres of oil should be poured in, and the level should be checked by looking through the peephole (fill halfway).

Before starting, it is advisable to place some oil on the collar bearing so that it is oiled during the first starting phase.

The quality of the oil to be used must be in accordance with the following specifications:

- ISO 32 with a viscosity of 32 cST at 40°C and 5.5 cST at 100°C.
- It must correspond to a hydraulic oil, in accordance with DIN 51525 (H-LP)

- It must correspond to a CLP lubricating oil, in accordance with DIN 51517
- The grade of force necessary to damage the oil must be above 12, in accordance with DIN 51354 (FZG-A/8, 3/90).

The oil supplied by standard is a synthetic type Mobil SHC 524. Mineral oil correspondent or similar to Mobil DTE 24 can be also used.

Other equivalent oils are listed below.

Equivalent oils:	AGIP	OSO 45
	API	CIS-6
	BP	Energol HLP 46
	ESSO	NUTO H 46
	FINA	HYDRAN 46
	IP	HYDRUS OIL 46
	KLÜBER	LAMORA 46
	SHELL	TELLUS OIL 46
	TEXACO	RANDO OIL HD B46
	TOTAL	AZOLLA P 46

Periodically check the oil level, always with the bowl stopped, and restore if needed.

Once a month, purge from residual water infiltrated in the oil chamber unscrewing the discharge oil plug (Fig. E/22).

This operation must be effected before the starting of the separator to have water separated from the oil.

Periodically check oil recycling, by visually checking the inspection glass (Fig. F/23). If the recycle flow is reduced or absent, maintenance is necessary.

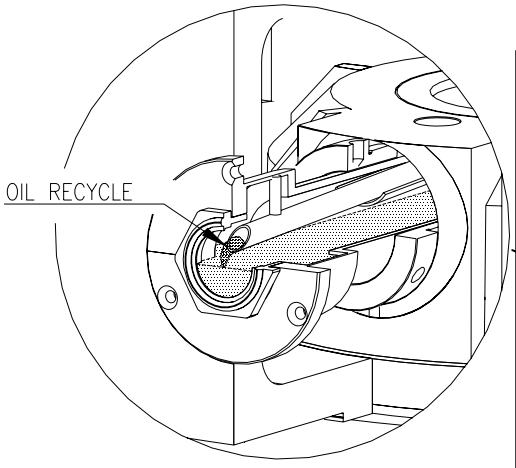


Fig. E/23

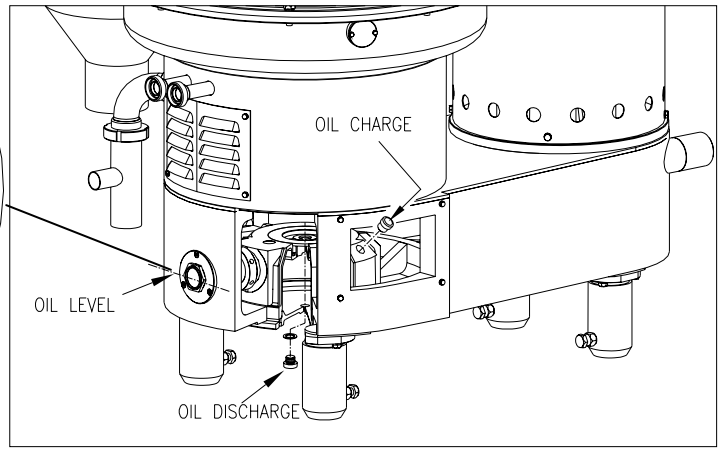


Fig. E/22

F. MECHANICAL DRIVE (disassembling and reassembling)

F/1. Belt and motor disassembling

Before carrying out the belt and motor disassembling operation, make sure that the separator is completely stopped and the electrical power source is disconnected.

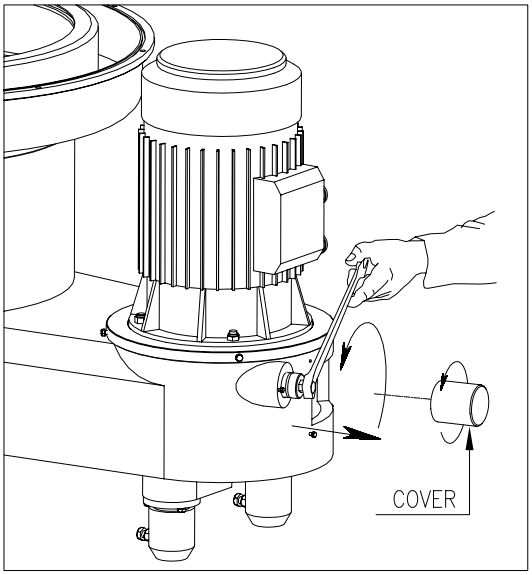


Fig. F/ 1

By removing the protection you can have access to the belt stretching system: unscrew the stretching screw so that the motor support flange can be moved towards the vertical shaft.

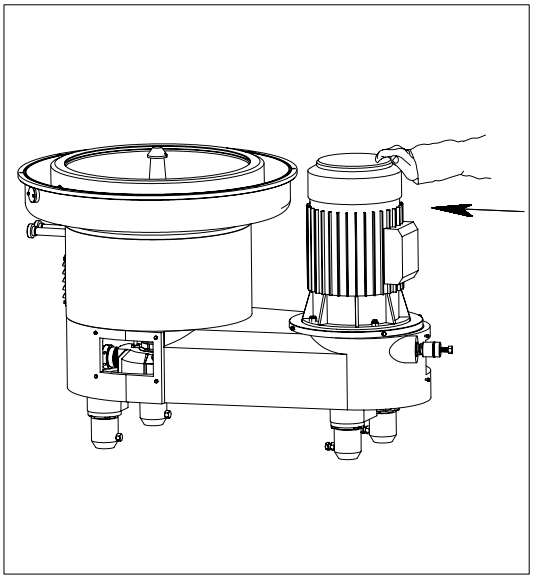


Fig. F/ 2

Move the motor towards the vertical shaft: this way the belt will loosen.

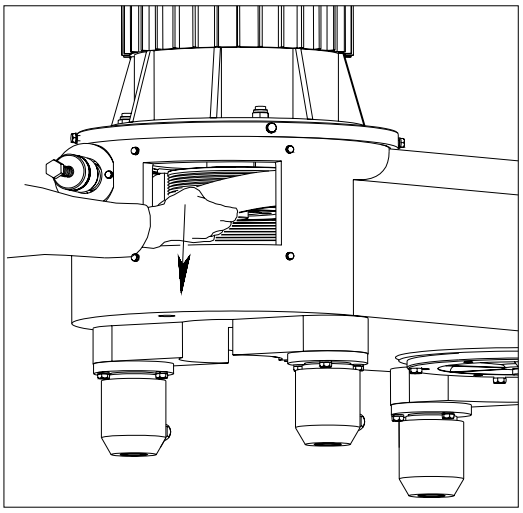


Fig. F/ 3

The distance between the two pulleys (motor's and shaft's) can be reduced and the belt can be removed from the motor's pulley.

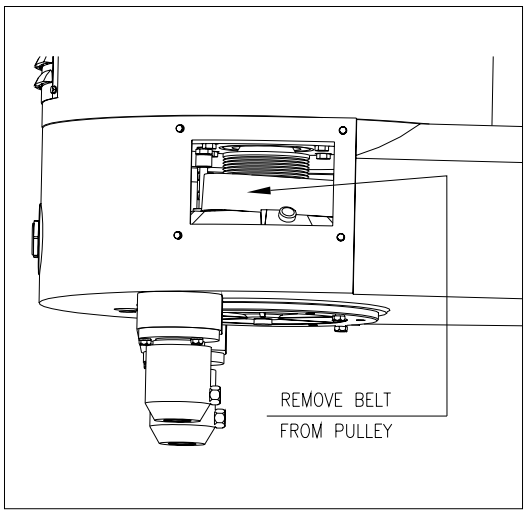


Fig. F/ 4

Remove the aeration doors around the vertical shaft and remove the belt from the shaft's pulley. Replace the belt if needed. When reinstalling the new belt check its correct placement.

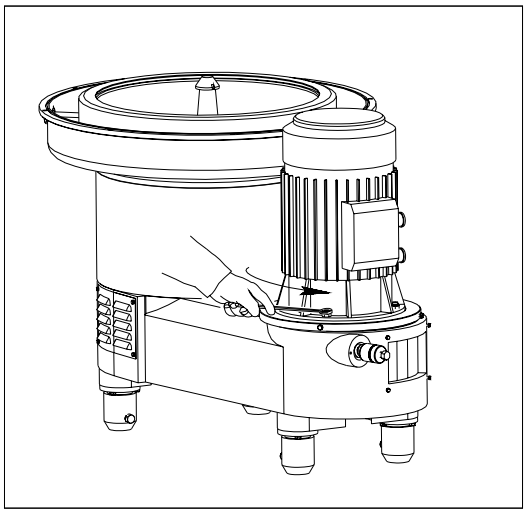


Fig. F/ 5

For motor removal, unscrew the flange nuts.

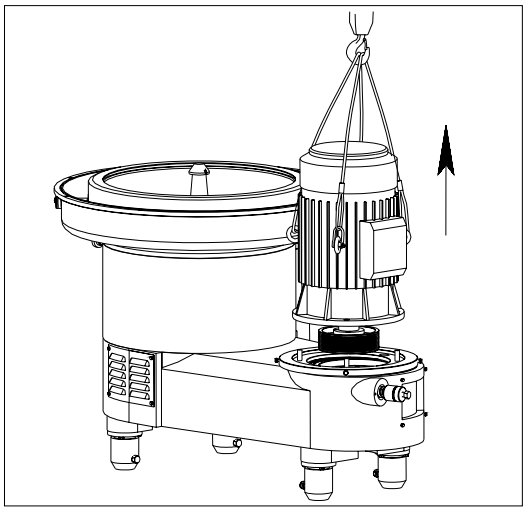


Fig. F/ 6

Remove the motor by lifting it with a hoist.

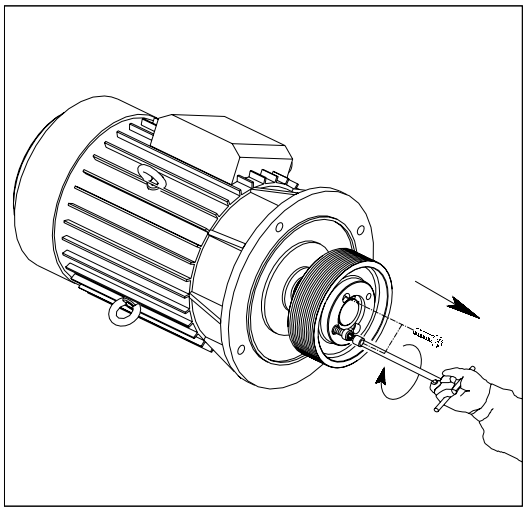


Fig. F/ 7

If needed, remove the pulley by screwing the blocking screws in the extraction holes so to press on the pulley's bearing.

F/2. Collar disassembling

Refer to chapter E for bowl removal. Before removing the collar make sure the vertical shaft is completely stopped and the power source is disconnected.

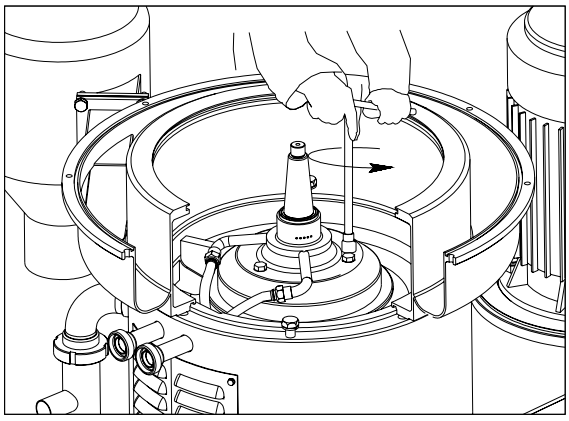


Fig. F/ 8

After removing the bowl (Chapter E), remove the collar's cage cover, labyrinth, collar cover and labyrinth's bearing.

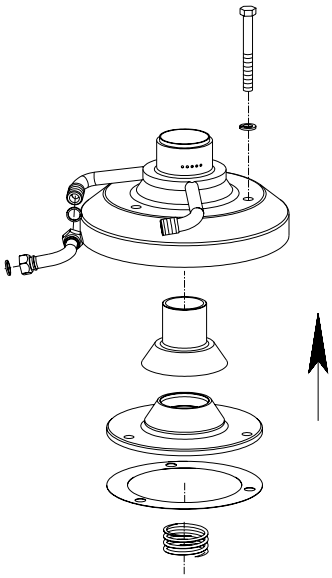


Fig. F/ 9

Remove the collar cover, labyrinth and collar cage cover.

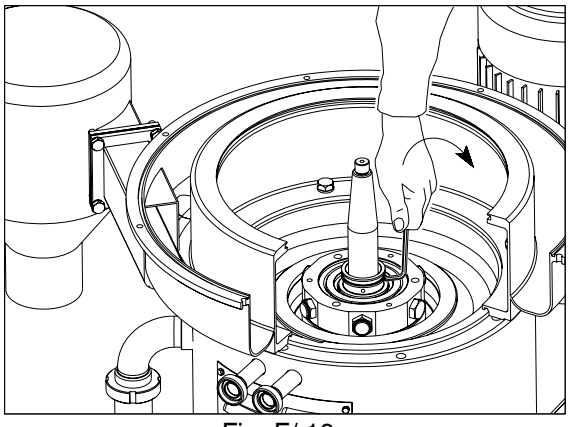


Fig. F/ 10

Unscrew the labyrinth bush' locking dowel.

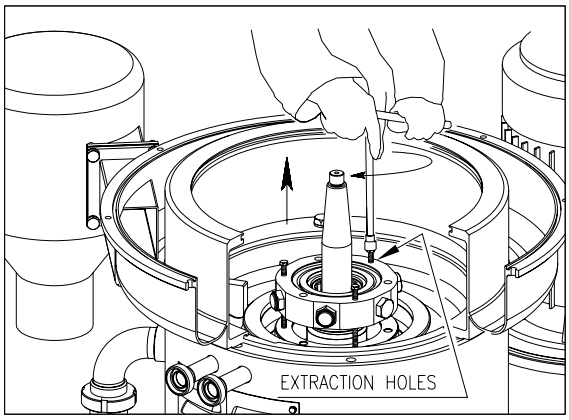


Fig. F/ 11

To remove the collar's cage, push on the basement by fastening screws in the threaded holes of the collar cage.

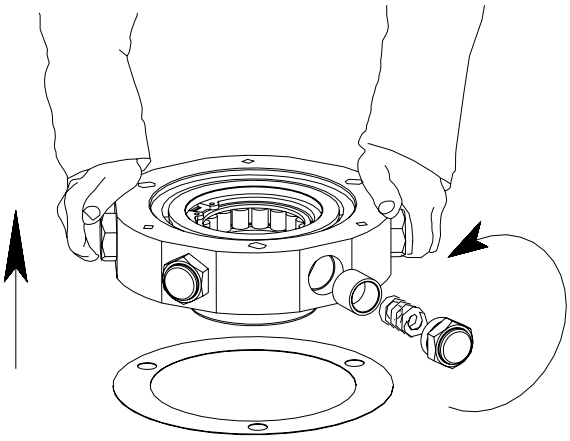


Fig. F/ 12

To extract the collar ring from the collar cage, unscrew the collar's nuts.

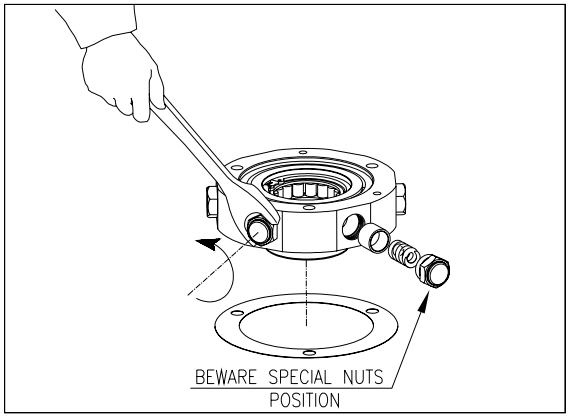


Fig. F/ 13

Pay attention to the position of the "special" nuts (they must be reassembled in the same position).

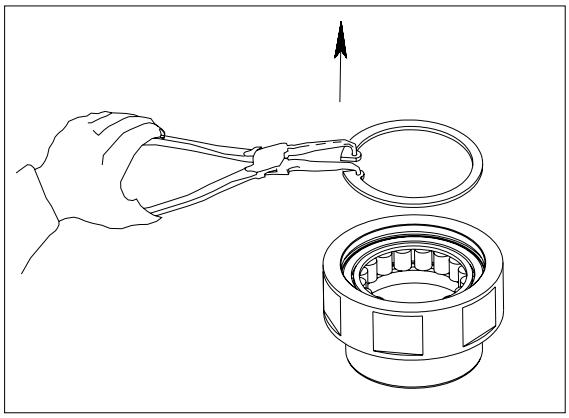


Fig. F/ 14

Once the collar's ring is removed, the Seeger ring and the vertical shaft's rolling bearing can be extracted too.

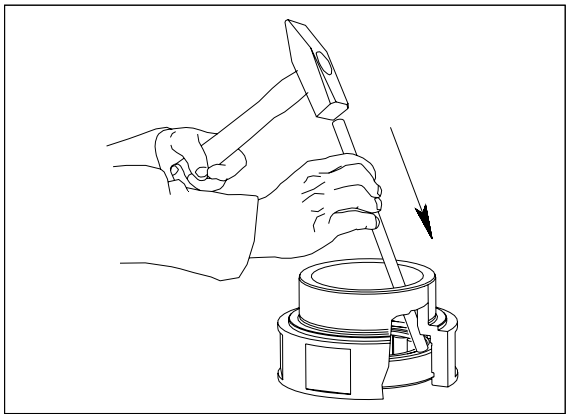


Fig. F/ 15

Extract the rolling bearing by hitting soft hammer blows with the aid of a pad.

F/3. Vertical shaft disassembling

Before removing the vertical shaft it's necessary to loosen the belt.

De-assemble the shaft's components as illustrated in Fig. F/18-30.

The bearings' shape permits the removal of the shaft, but the operator must be careful not to damage the bearings.

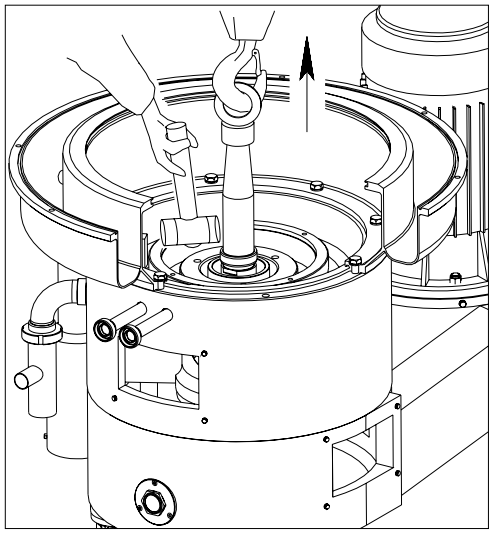


Fig. F/ 16

Once the bowl (Chapter E) and the collar are removed, fasten a lifting nut to the vertical shaft and lift it using a hoist. If needed, lightly hit the shaft with a plastic hammer.

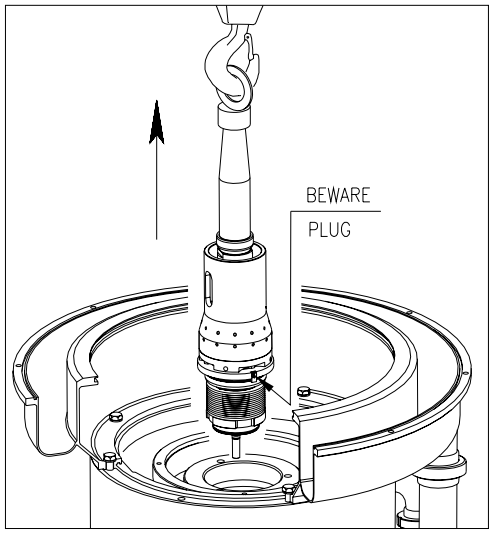


Fig. F/ 17

Be careful not to damage the plug.

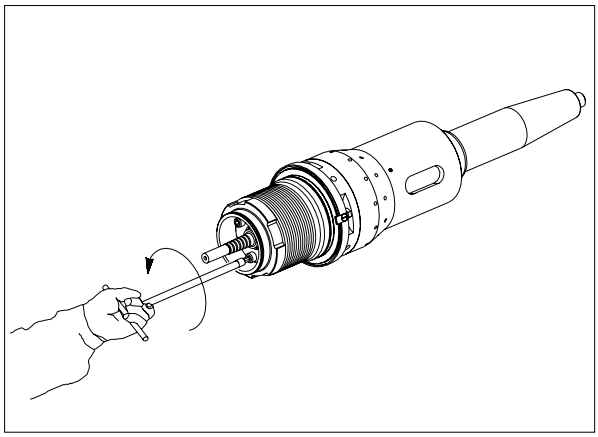


Fig. F/ 18

Loosen up the ring nut by partially unscrewing the bolts

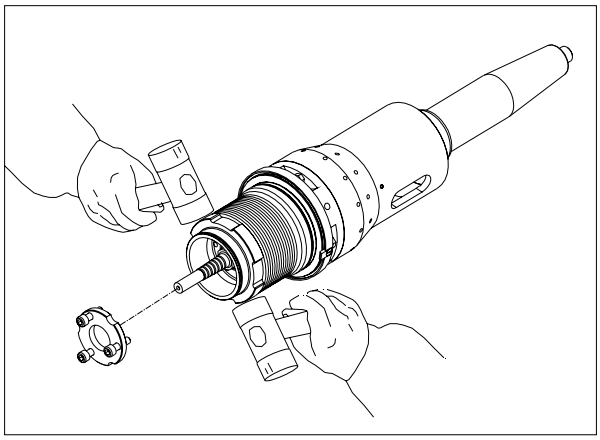


Fig. F/ 19

Unblock the locking set by hitting on the pulley's border with a plastic hammer

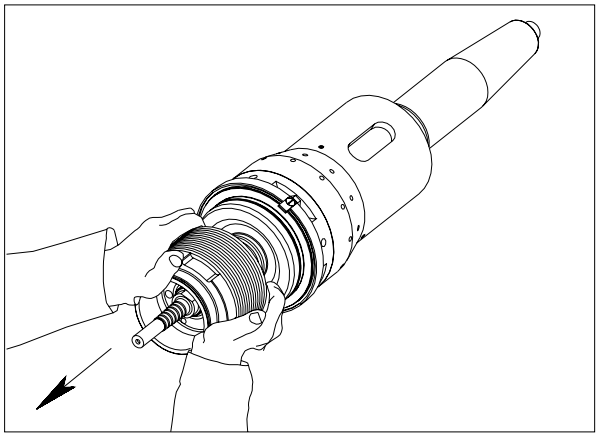


Fig. F/ 20

Remove the pulley

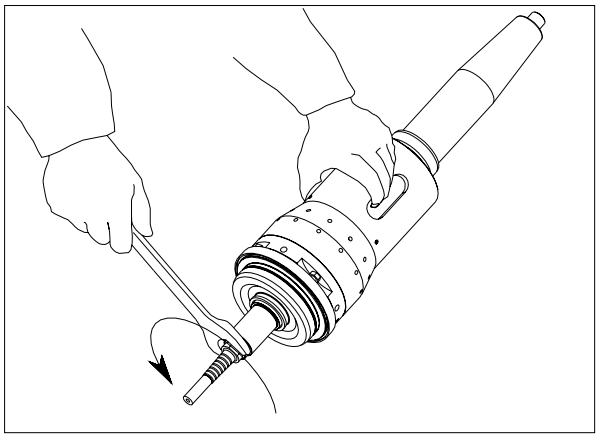


Fig. F/ 21

Remove oil pipe

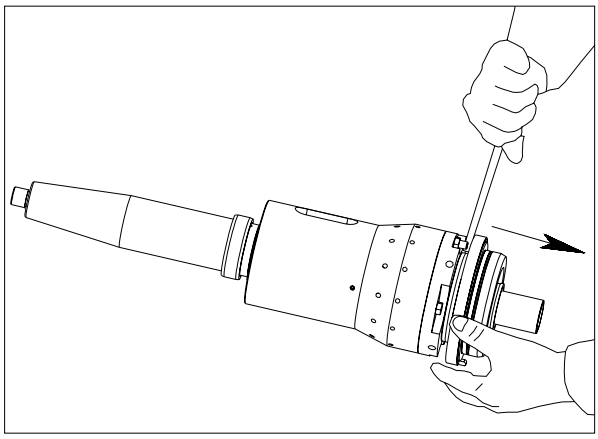


Fig. F/ 22

Remove thrust block support

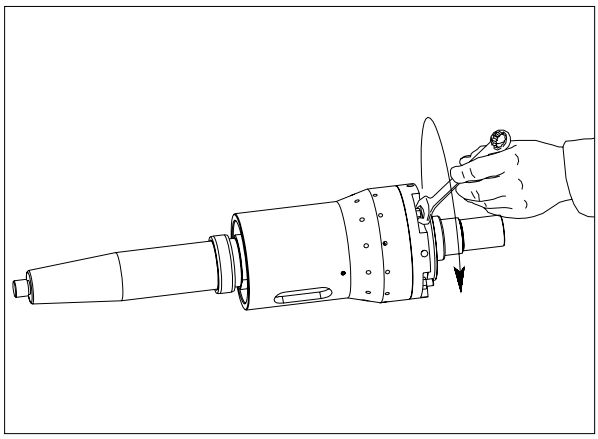


Fig. F/ 23

Unscrew the shell support flange' screws

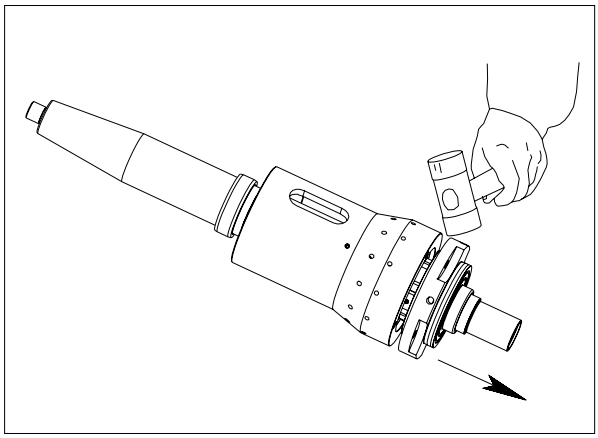


Fig. F/ 24

Remove shell support flange

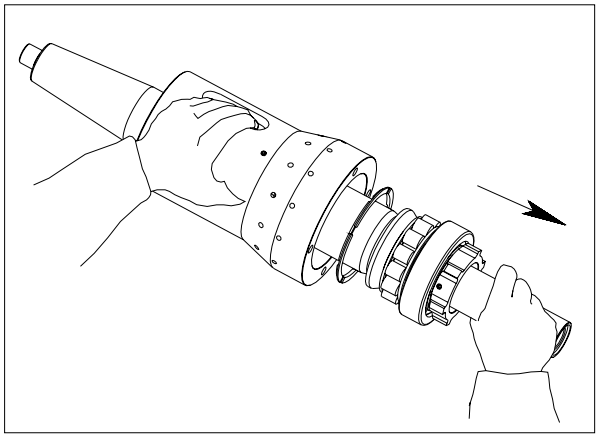


Fig. F/ 25

Remove the bearing carrying shell

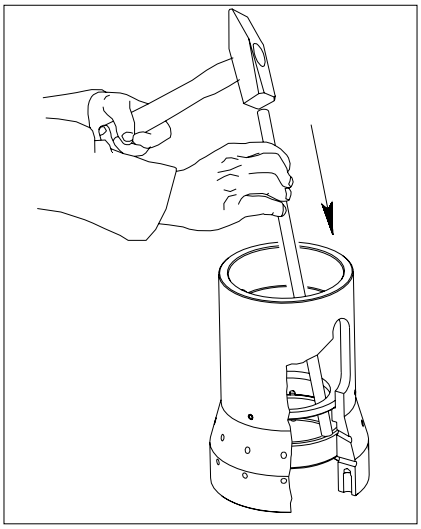


Fig. F/ 26

Remove bearing (external ring) from the bearing carrying shell.

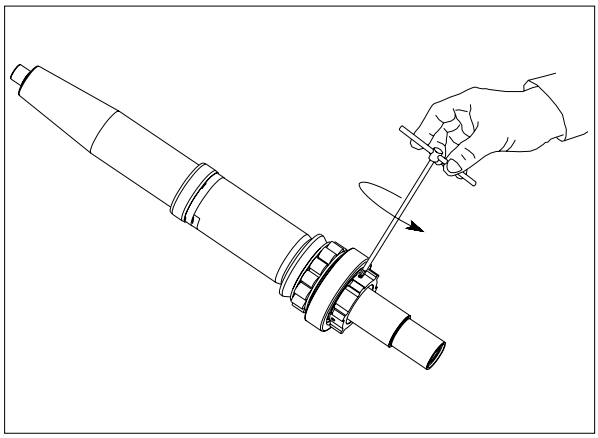


Fig. F/ 27

Unscrew dowels

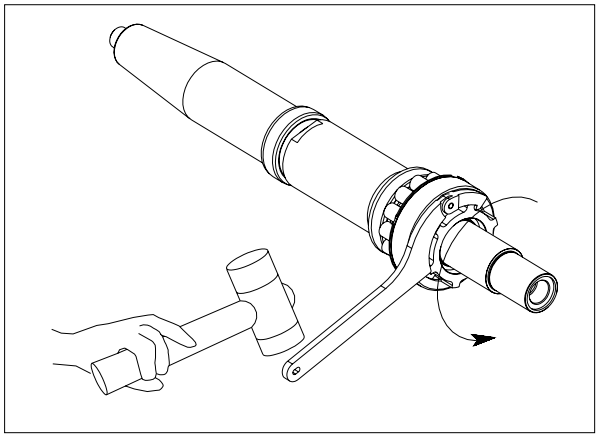


Fig. F/ 28

Unscrew ring nut

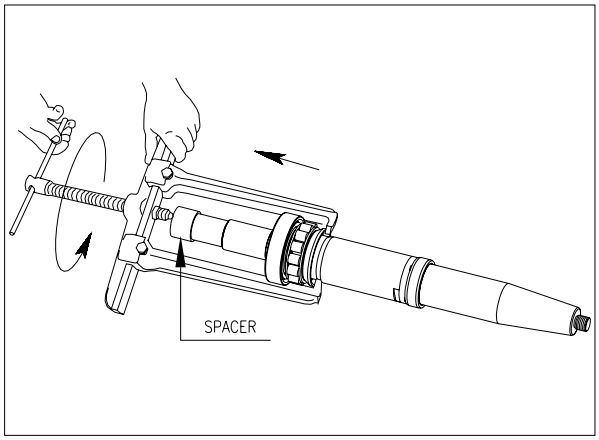


Fig. F/ 29

Remove oil seal washer, bearings and oil distributing washers

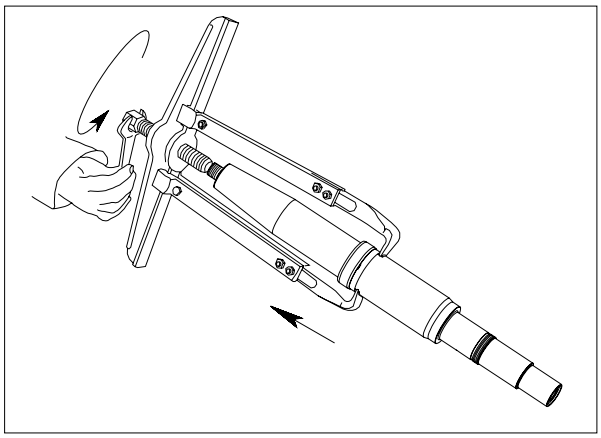


Fig. F/ 30

Remove oil seal washer, bearings and oil distributing washers

F/4. Oil cup disassembling

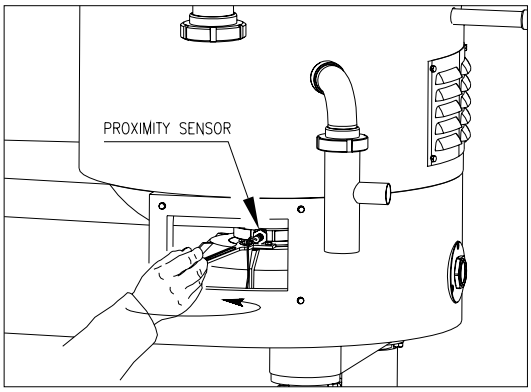


Fig. F/ 31

Remove aeration doors so to reach and remove the proximity sensor

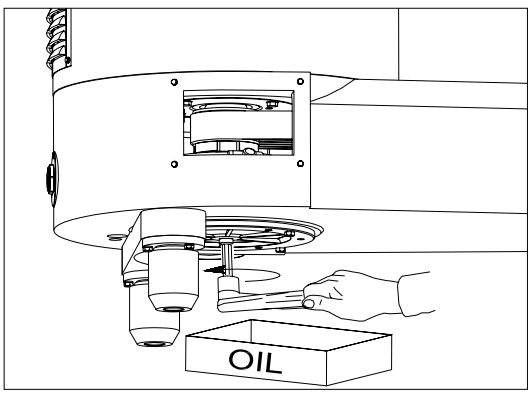


Fig. F/ 32

Empty the oil cup by unscrewing its plug. Collect the oil in a pan or tank.

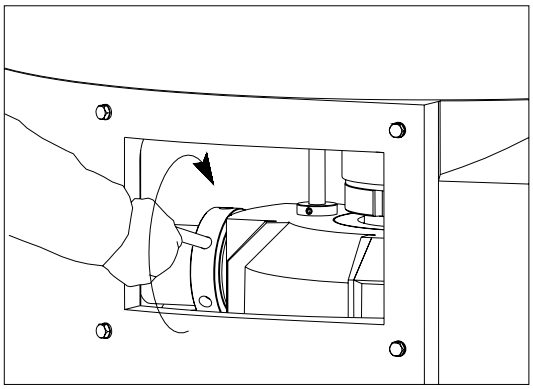


Fig. F/ 33

Loosen up the locking ring screws.

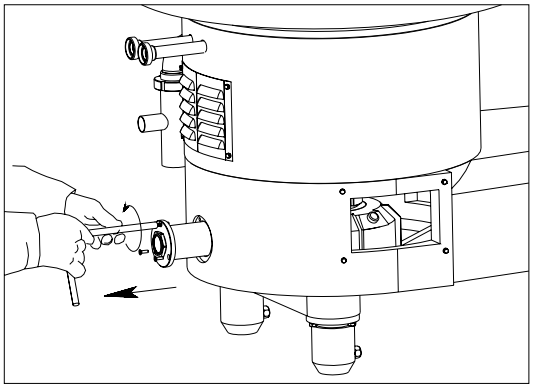


Fig. F/ 34

Remove the oil collecting pipe.

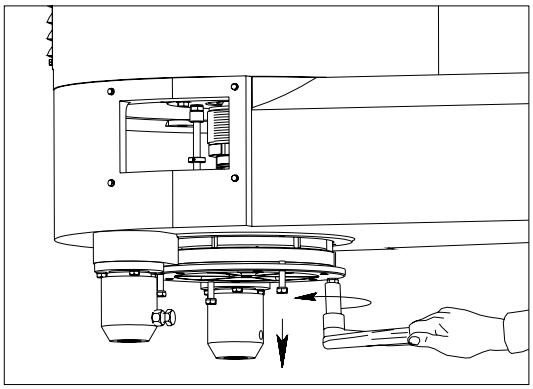


Fig. F/ 35

Remove the oil cup, being careful to avoid any damage.

F/5. Vertical shaft reassembling

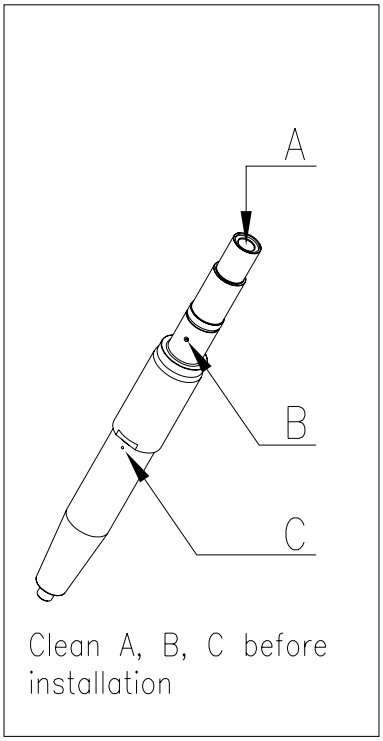


Fig. F/ 36

Before reassembling, check cleaning of duct A and oil distribution holes B and C. If needed, clean with adequate cleaner

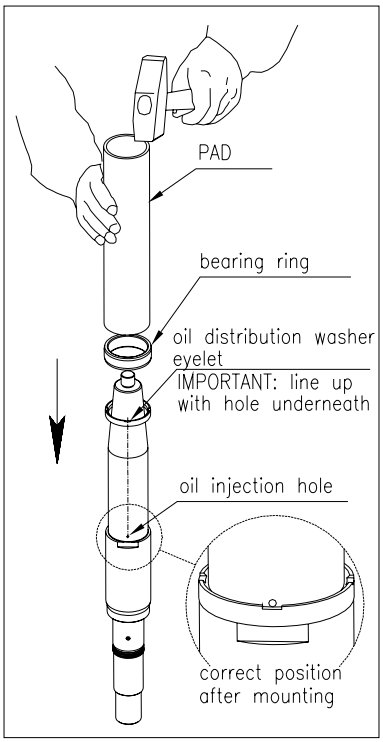


Fig. F/ 37

On the shaft's upper part, mount (with the help of a pad) the oil distributer washer, **making sure that the eyelet is coincident with the oil distribution hole** and the bearing (internal ring)

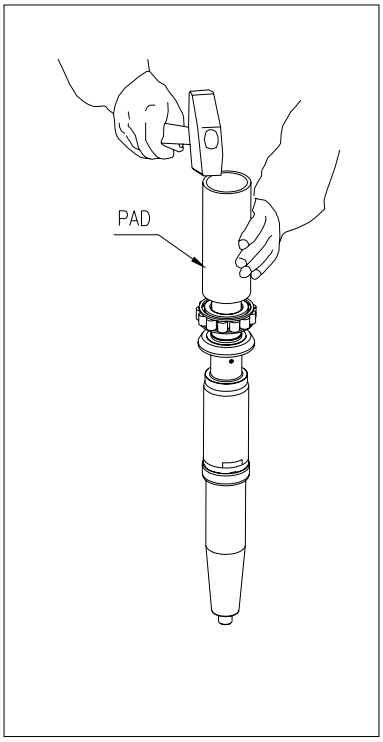


Fig. F/ 38

On the shaft's lower part mount (with the help of a pad) the oil seal washer, the bearing (internal ring) and the oil distributor washer

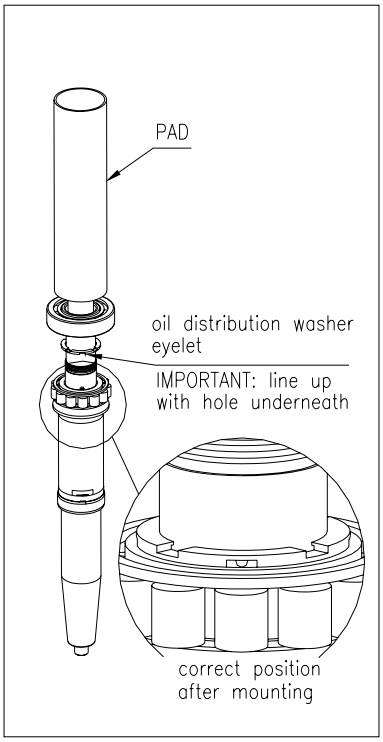


Fig. F/ 39

Make sure that the eyelet is coincident with the oil distribution hole, and the thrust support bearing.

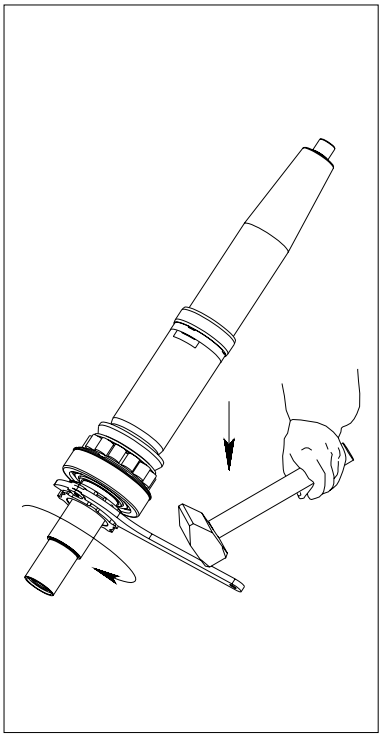


Fig. F/ 40

Lock with ring nut and tighten the screws.

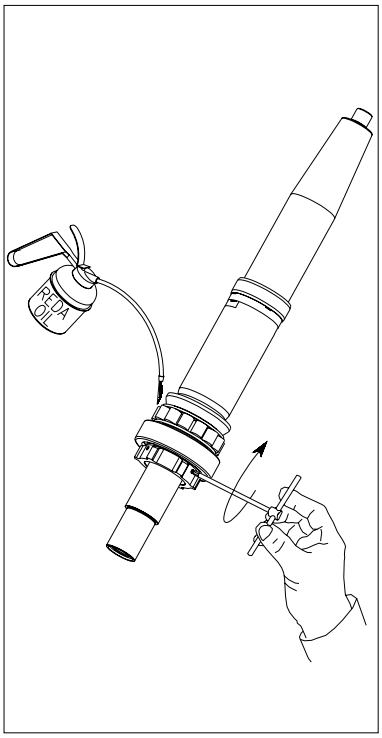


Fig. F/ 41

Also lubricate the bearings.

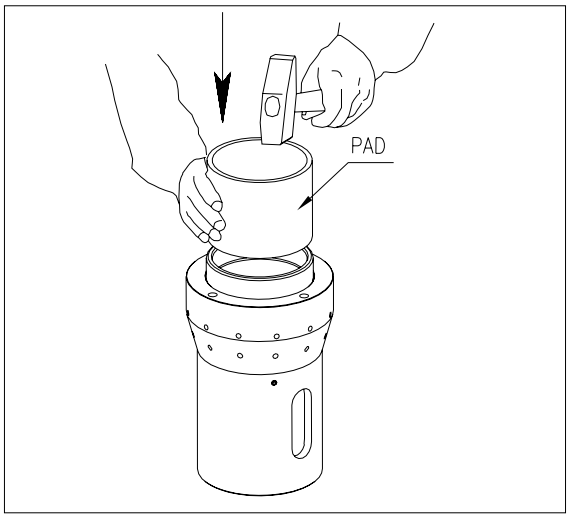


Fig. F/ 42

Mount the bearing (external ring) in the bearing carrying shell.

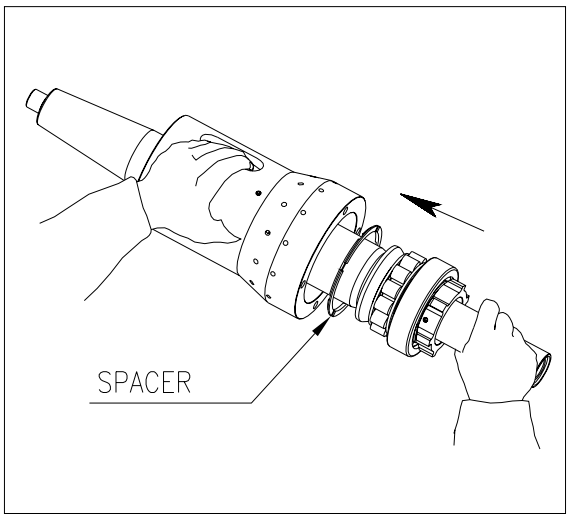


Fig. F/ 43

Mount the spacer and the bearing carrying shell on the shaft.

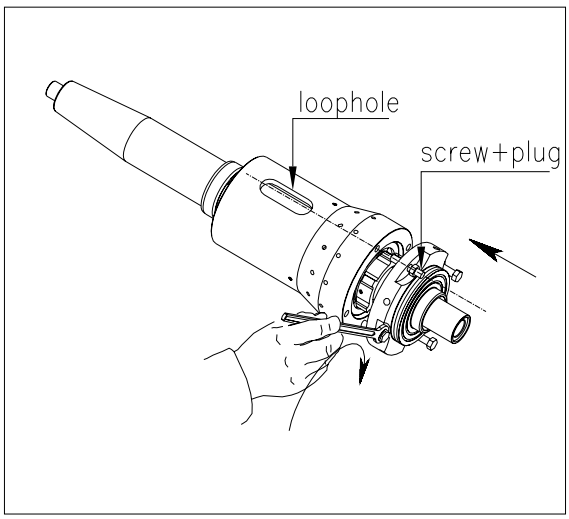


Fig. F/ 44

Mount the shell support flange to the bearing carrying shell, being careful to line up the loophole and the plug.

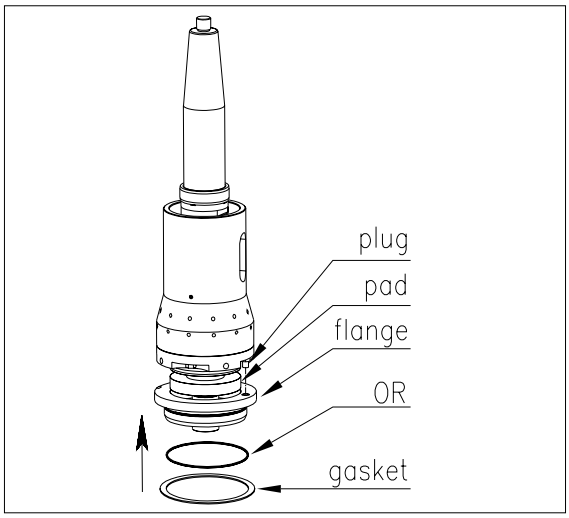


Fig. F/ 45

Mount the O-ring and the rubber cushion on the thrust block support, then mount the thrust block support on the shaft being careful to line up the support correctly.

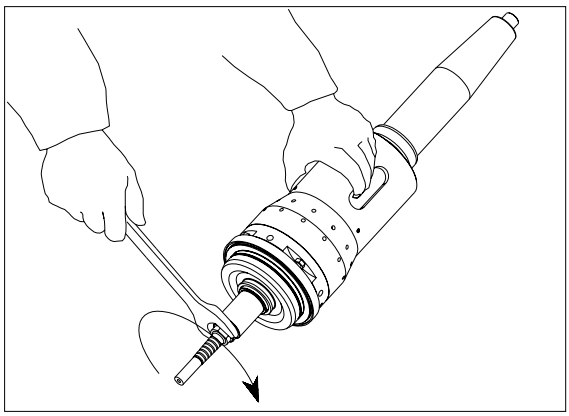


Fig. F/ 46

Mount the gasket and the oil pump.

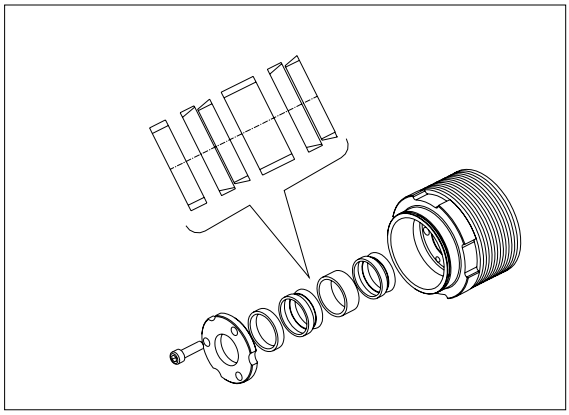


Fig. F/ 47

Mount the docking set and the spacers

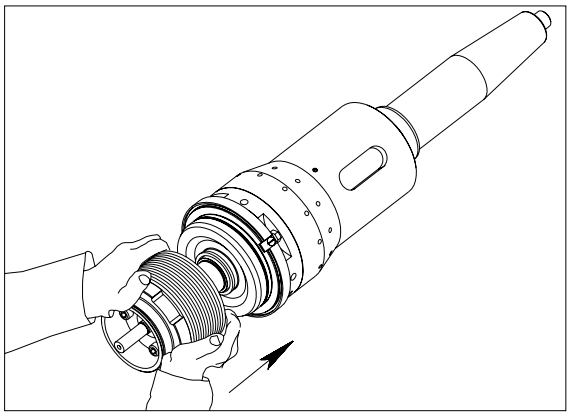


Fig. F/ 48

Mount the pulley on the shaft.

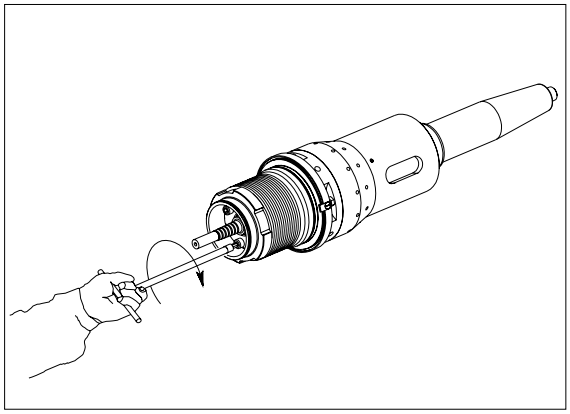


Fig. F/ 49

Lock the pulley to the shaft.

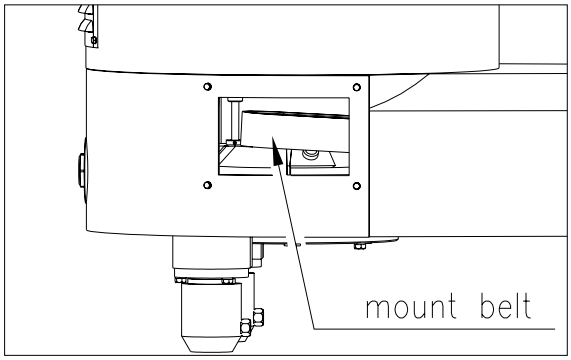


Fig. F/ 50

Before installing the shaft, remember to place the belt.

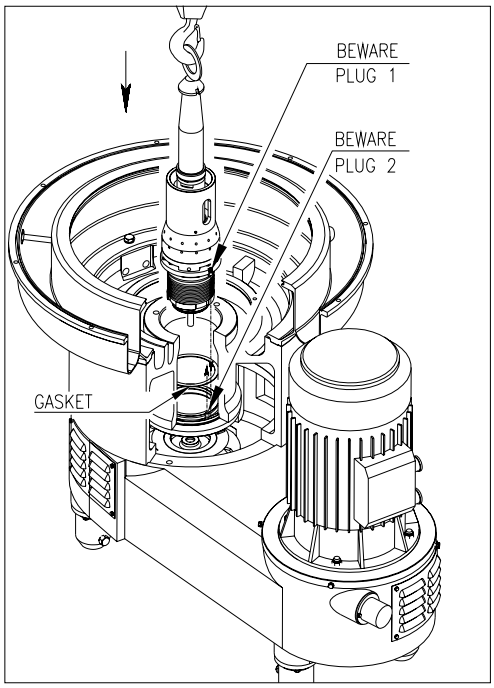


Fig. F/ 51

Lift the shaft with a hoist. To avoid damage, make sure that the shaft is in perfect vertical position and that the thrust support gasket is mounted.

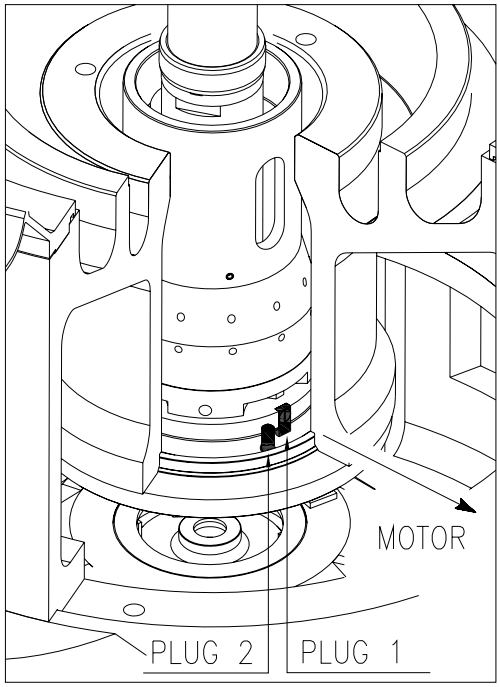


Fig. F/ 52

Place the shaft on its site, making sure the plugs are disposed as shown.

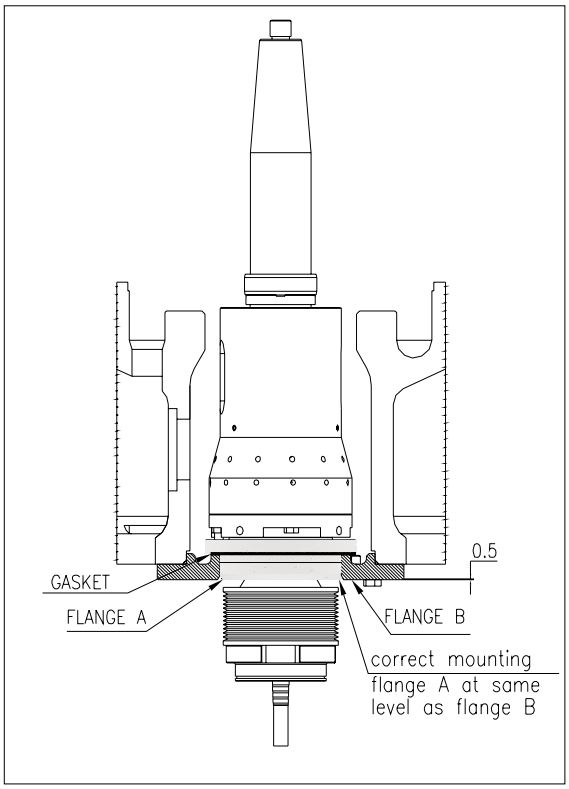


Fig. F/ 53

The shaft is mounted correctly when flange A and flange B are at the same height. If needed, softly hit the shaft with a plastic hammer so to bring the two flanges at the same height.

F/6. Collar assembling

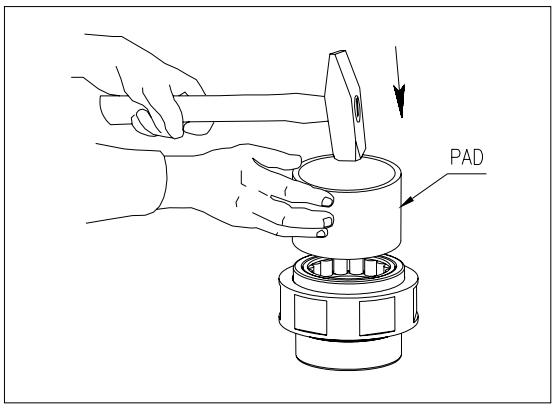


Fig. F/ 54

With the help of a pad, mount the bearing ring inside the collar ring.

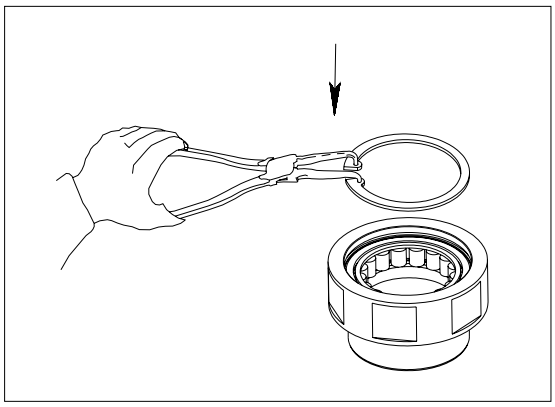


Fig. F/ 55

Lock with Seeger ring, then mount the collar ring inside the collar cage.

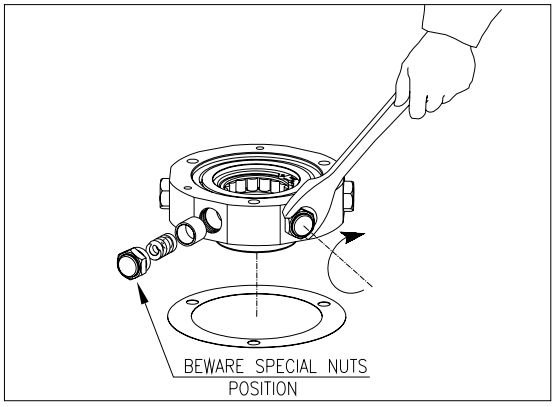


Fig. F/ 56

Mount the collar cage parts (springs, pistons, nuts), being careful to place them correctly.

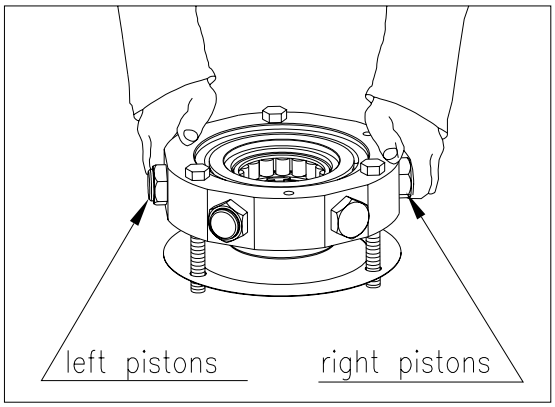


Fig. F/ 57

Mount the gaskets on the collar cage.

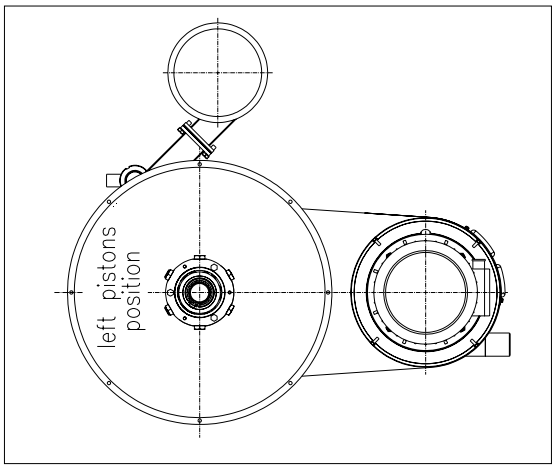


Fig. F/ 58

Mount the collar on the separator being careful to place correctly the special nuts.

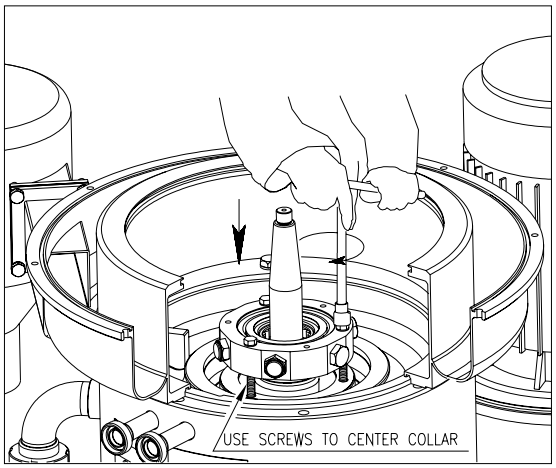


Fig. F/ 59

To align the collar, use the screws as shown. Once the collar is mounted, remove the screws and check that the collar is placed correctly (it should lean on the separator body) – if needed use a plastic hammer to softly hit the collar and place it correctly.

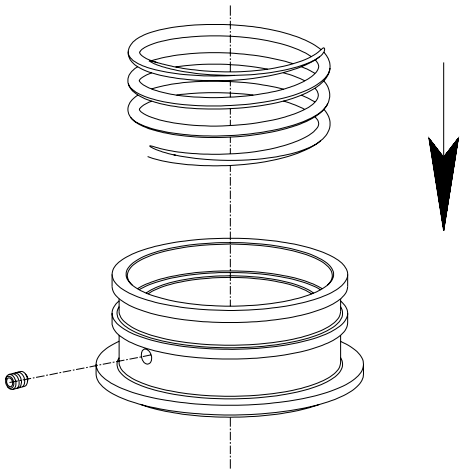


Fig. F/ 60

Mount the oil seal washer and labyrinth spring.

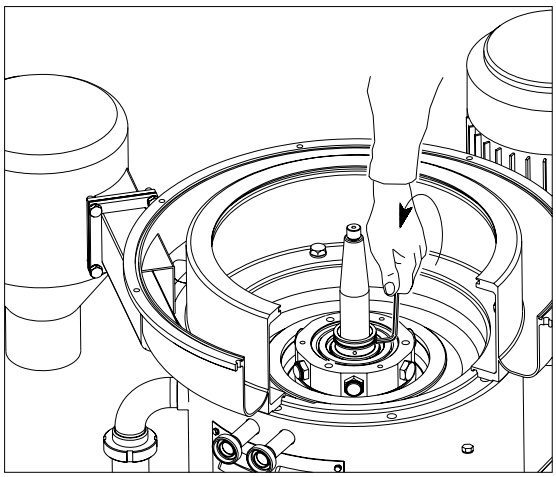


Fig. F/ 61

Lock the oil seal washer.

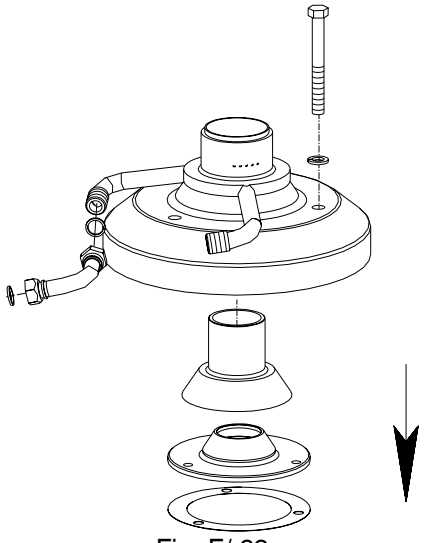


Fig. F/ 62

Mount the collar cage cover with gasket, labyrinth and collar's cover.

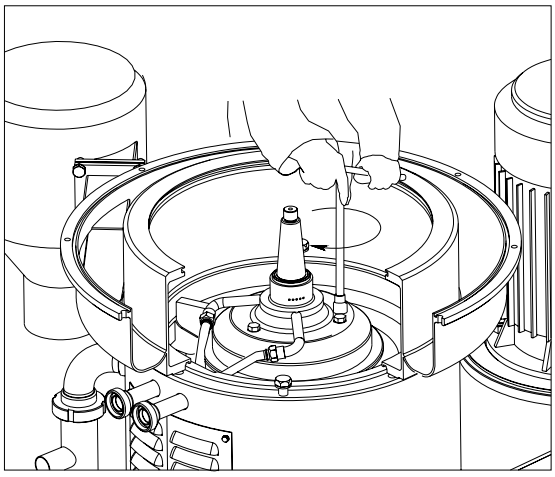


Fig. F/ 63

Fix the collar's cover to the machine base.

Once the vertical shaft is mounted, the proximity sensor can be mounted (Fig. F/64): it must stay not more than 2mm away from the pulley.

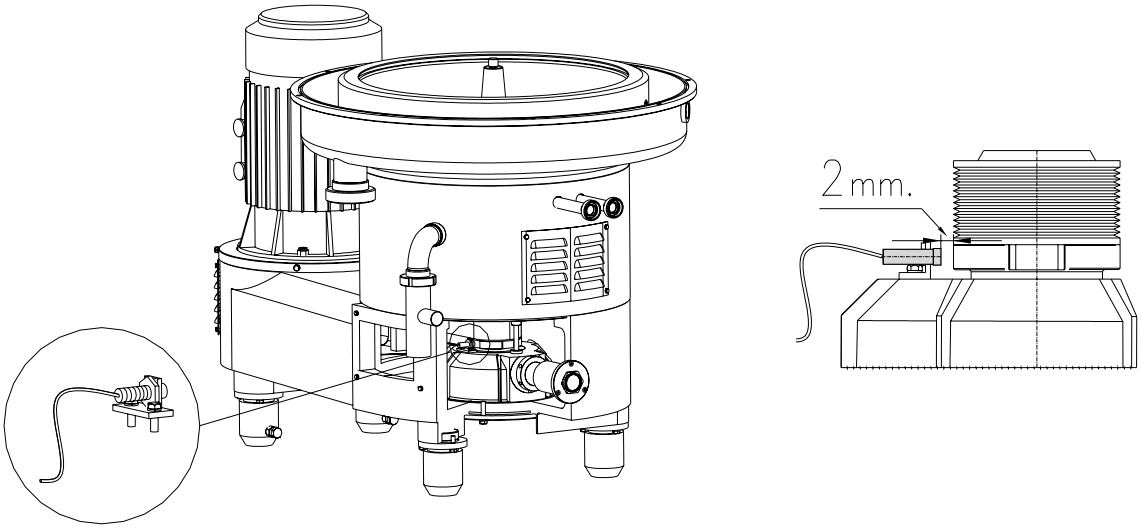


Fig. F/ 64

F/7. Motor assembling

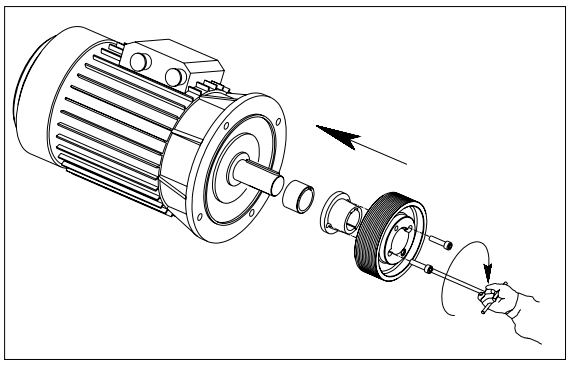


Fig. F/ 65

Lock the pulley to the motor.

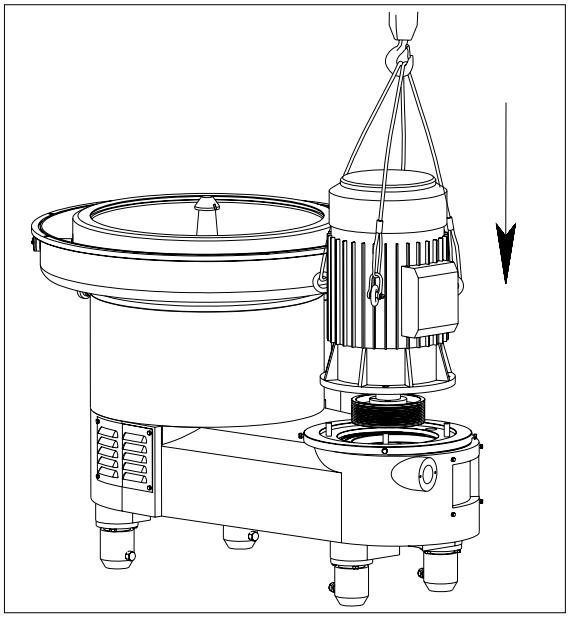


Fig. F/ 66

Lift the motor with a hoist and mount it on site, screwing it to the motor support flange.

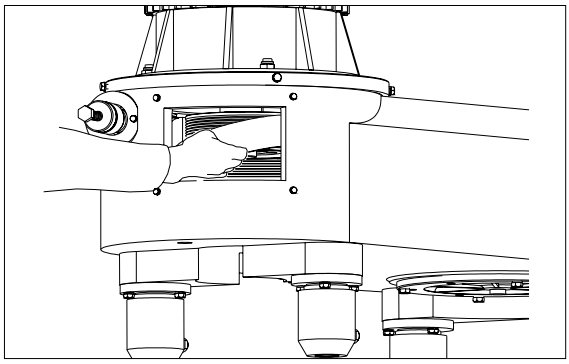


Fig. F/ 67

Place the belt around the pulley.

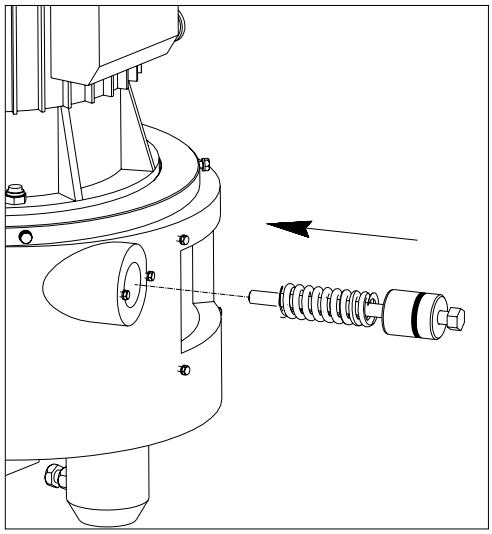


Fig. F/ 68

Mount the belt stretching set (spring, tie rod and bush).

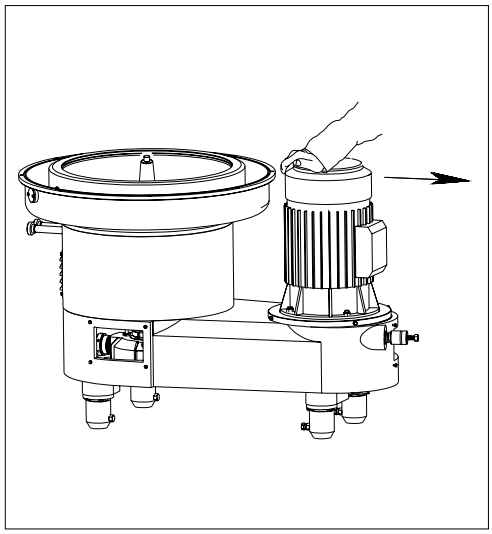


Fig. F/ 69

With belt mounted, move the motor and screw in the tie rod so to get the bush leaning on the spring (the spring must be let loose).

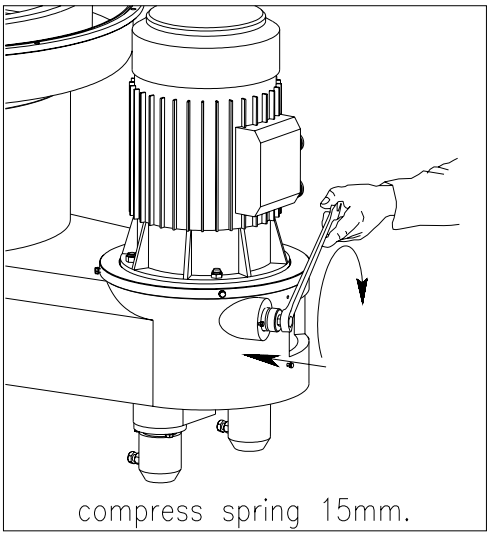
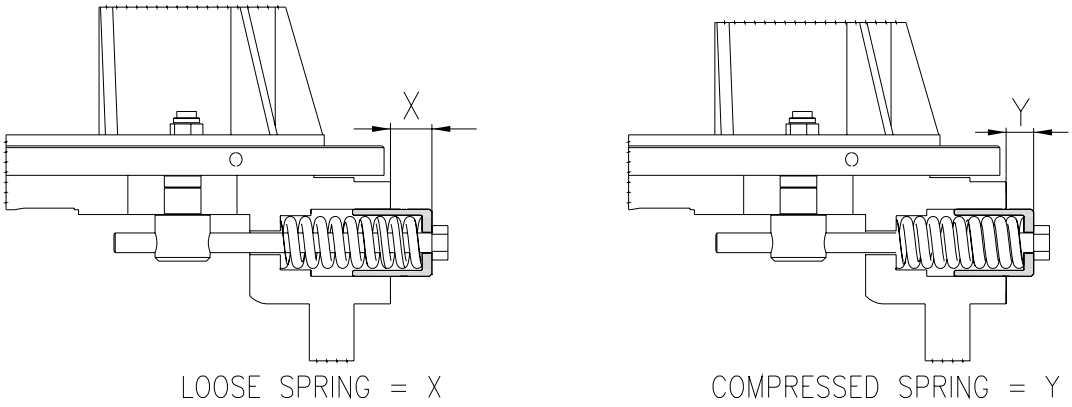


Fig. F/ 70

With proper wrench, further tighten the tie rod, so that the spring is compressed by 15 mm: this way the belt is properly stretched.



X−Y=15mm

Fig. F/ 71

G. RUNNING DEFECTS

Should problems verify on the separator, please follow the instructions mentioned here below.

It is recommended, anyway, to maintain the centrifuge in perfect condition and to check it periodically by a specialized operator.

DEFECT	CAUSE	SOLUTION
Bowl speed lower than normal or difficulties to reach the correct speed	No correct electrical connections or wrong source voltage	Check the voltage and connections on electrical drawing
	The bowl loses product from sludge discharge pipe because it is open and product pump works	Stop the pump and close the bowl
	The frequency converter is in default	Check the frequency converter and its alarm signal
	The driving belt is damaged or broken	Replace the driving belt
The bowl doesn't close	Not enough pressure to the hydraulic control set (pressure required about 3 bar)	Check water supply (to the water tank if existing)
		Check the floating valve on water tank if existing
		Check the water filters
	The water pump doesn't work or rotates the wrong way	Start the water pump or check thermal relay into the control board or fuses
		Check the correct rotation way
	Not enough water sent to bowl closing pipe	Open the manual closing valve for the necessary time (about 30") (control if the solenoid valve ER of water unit works correctly)
		If necessary make a discharge by button on control board
	The holes of bowl bottom and of sliding ring are closed	Open the bowl and check holes

DEFECT	CAUSE	SOLUTION
	Bowl gaskets are worn	Control the gaskets and replace them if necessary
	Bowl valve is dirty	Extract the bowl valve, clean it and check that the valve seat isn't damaged (remove burrs or dents with emery paper)
	The holes of collar cage distributor are closed by lime	Clean the holes
Leakage from the sludge discharge pipe	Dirt between the bowl top ring and sliding ring	Make a total discharge by hand
	The bowl seals are worn	Change the seals
	The winged cover or impeller's gasket are worn	Check the gaskets and replace them if needed
	Too high product pressure in the separator	Unscrew the manual valve until overflow
		Reduce counter-pressure
The bowl doesn't discharge automatically	Too low discharge time	Increase the discharge time on the discharge timer (see control board)
	Bowl valve is dirty	Extract the bowl valve, clean it and check that the valve seat isn't damaged (remove burrs or dents with emery paper)
	Discharge solenoid valve doesn't work or it is dirty	Check valve send water to the bowl disassembling the connection to the frame, clean it or substitute it.
		Check the fuses into the control board
The bowl discharges neither automatically nor manually	Water doesn't reach the water unit	Check that water is at required pressure (verify pump, balance tank and filters)
	Bowl valve is dirty	Extract the bowl valve, clean it and check that the valve seat isn't damaged (remove burrs or dents with emery

DEFECT	CAUSE	SOLUTION
		paper)
	The collar cage protection (distributor) are dirty and water isn't enough	Clean the holes
	The holes under the bottom bowl (you must turn it to see them) are closed	Clean the holes
Abnormal noises or vibrations when running	The impellers crash against the bowl.	Check the impellers height; add or remove spacers.
	Disc column is not enough compressed	Add more discs
	Bowl incorrectly assembled	Check that marks on the bowl bottom and bowl ring are line up (all marks of the bowl pieces must be lined up)
	The bearings and/or gears are worn	Check them and substitute if necessary.
	Driving belt too stretched or too loose	Check the driving belt stretching (chapter F)
Insufficient clarification	Too high flow rate at inlet	Check the inlet flow rate and decrease it if needed.
	Too low working pressure	Increase working pressure (with AP system set pressure at 6 atm)
	Bowl discs are dirty.	Disassemble the bowl and carry out a washing (it's recommended to carry out washings as explained in chapter D).

H. Components, spare parts list

When spare parts are ordered (to avoid misunderstanding) it is always necessary to mention:

- TYPE AND SERIAL NUMBER OF THE MACHINE

(Data indicated on the name plate on the motor protection)

- REFERENCE NUMBER AND DESCRIPTION OF EACH PIECE TO ORDER.

(Data indicated in the following components list)

(A) Spare parts supplied together to the machine

(B) Spare parts recommended every 6 months

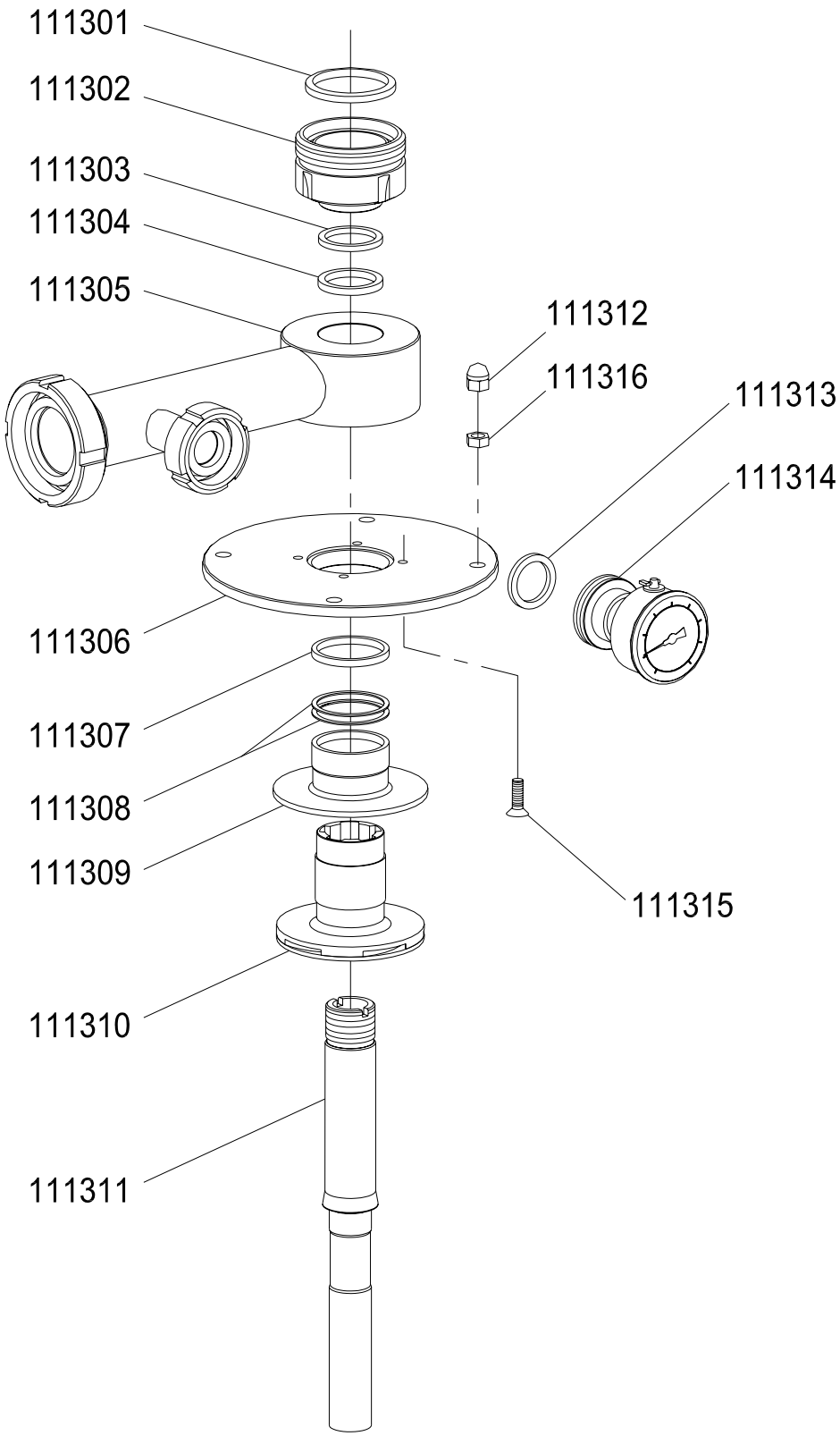
(C) Spare parts recommended every year

(D) Spare parts recommended on stock

N.B.:A complete set of gaskets includes all the articles (B) e (C) pag.H2, H4 and part 110952 (grease).

Part No	Qty	Description	
111301	1	Gasket	(B)(A)
111302	1	Blocking nut	
111303	1	Gasket	(B)(A)
111304	1	Gasket holding ring	(B)(A)
111305	1	Distributor	
111306	1	Support flange	
111307	1	Gasket	(B)(A)
111308	(*)2	Spacer	(B)(A)
111309	1	Turbine ring	
111310	1	Turbine	
111311	1	Feeding sleeve	
111312	4	Nut	
111313	1	Gasket	(B)(A)
111314	1	Manometer	(D)
111315	4	Screw	
111316	4	Nut	

(*) variable quantity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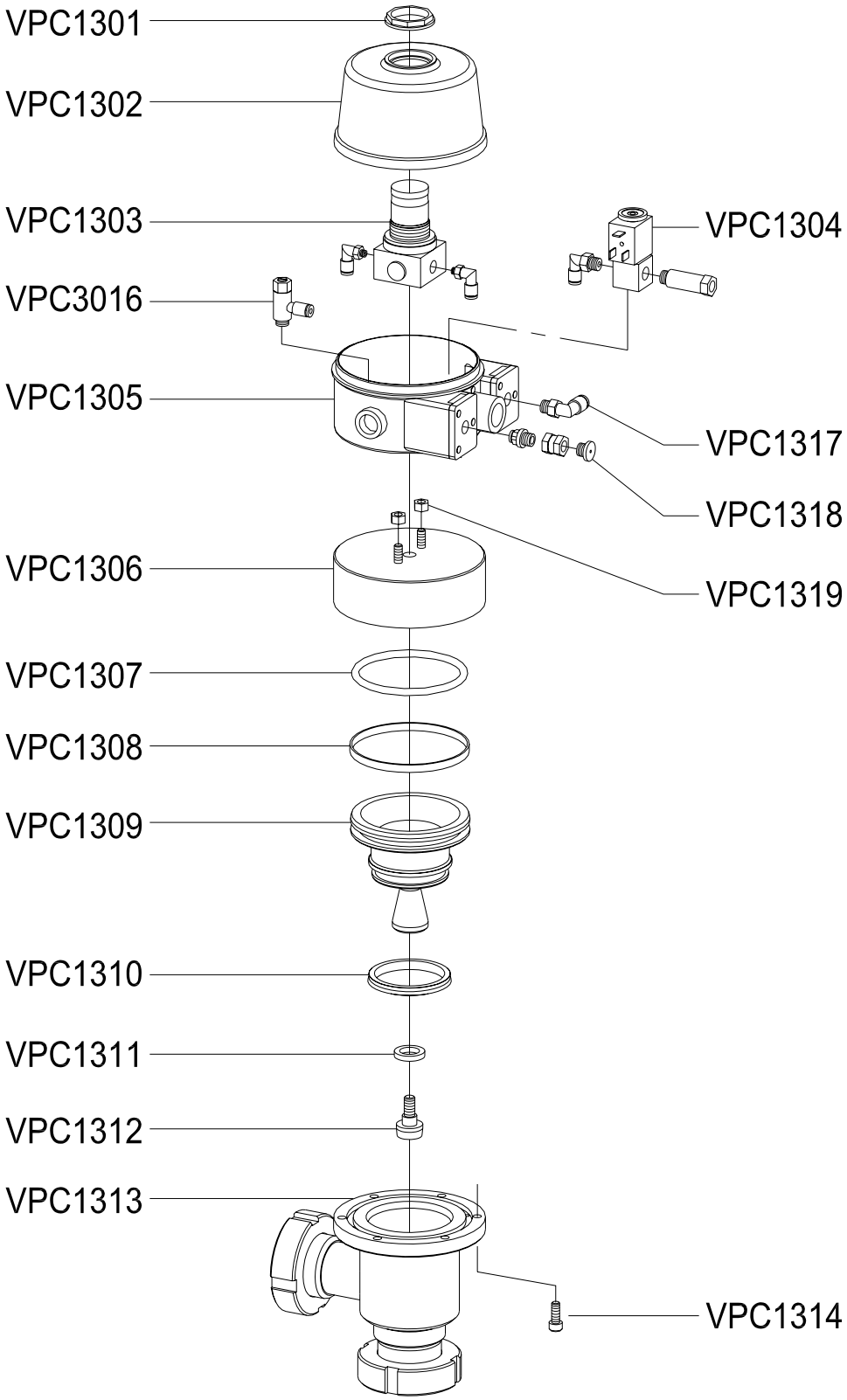
111311

Part No	Qty	Description	
VPC1301	1	Nut	
VPC1302	1	Plastic cover	
VPC1303	1	Air pressure reducer	(D)
VPC1304	1	Solenoid valve (optional)	(D)
VPC1305	1	Plastic cover base	
VPC1306	1	Valve cup	
VPC1307	1	Gasket	(D)
VPC1308	1	OR gasket	(D)
VPC1309	1	Piston	
VPC1310	1	Gasket	(D)
VPC1311	1	Gasket	(D)
VPC1312	1	Screw	
VPC1313	1	Valve body	
VPC1314	6	Screw	
VPC1316	1	Flow regulator	
VPC1317	1	Air inlet connection	
VPC1318	1	Calibrated nozzle	
VPC1319	2	Nut	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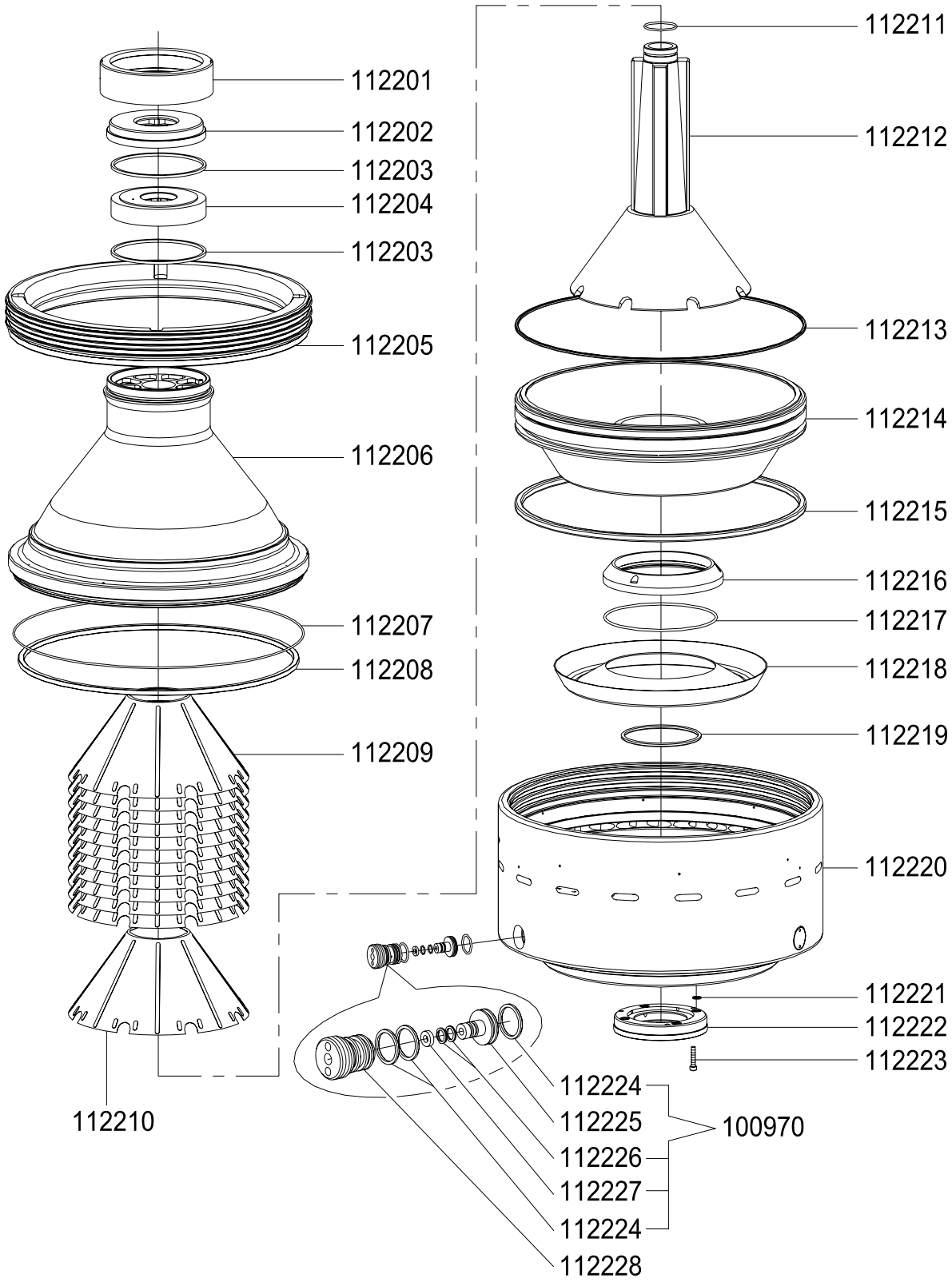
VPC1313
VPC1314

Part No	Qty	Description	
112201	1	Closing ring at cap	
112202	1	Bowl top cover	
112203	2	Gasket	(B)(A)
112204	1	Winged cover	
112205	1	Bowl closing ring	
112206	1	Cap	
112207	1	Toroidal gasket	(B)(A)
112208	1	Nylon gasket	(C)(A)
112209	(*)165	Intermediate disc	(A)
112210	1	Base disc	
112211	1	OR gasket	(B)(A)
112212	1	Lantern	
112213	1	Gasket	(B)(A)
112214	1	Sliding ring	
112215	1	Gasket	(B)(A)
112216	1	Protection sheet locking ring	
112217	1	OR gasket	(B)(A)
112218	1	Protection sheet	
112219	1	OR gasket	(B)(A)
112220	1	Drum bottom	
112221	4	OR gasket	(B)(A)
112222	1	Distribution flange	
112223	3	Screw	
112224	3	OR gasket	(B)(A)
112225	1	Valve piston	
112226	2	OR gasket	(B)(A)
112227	1	Pad	(B)(A)
112228	1	Valve body	

(*) variable quantity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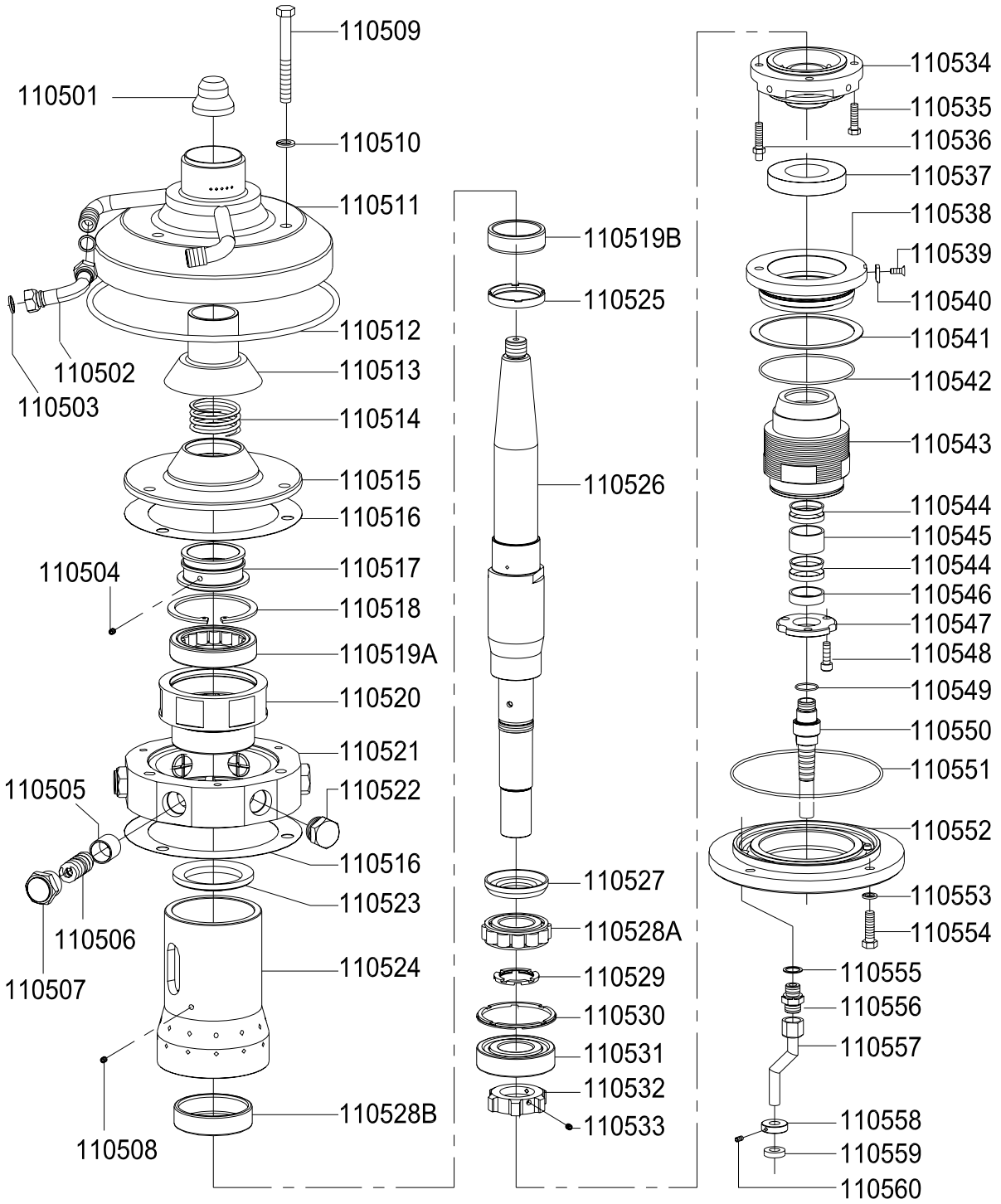
Part No	Qty	Description	
110501	1	Shaft nut	
110502	2	Water inlet pipe	
110503	4	Gasket	
110504	1	Blocking screw	
110505	6	Piston	
110506	6	Spring	
110507	4	Collar nut	
110508	1	Blocking screw	
110509	3	Screw	
110510	3	Elastic washer	
110511	1	Collar cage cover	
110512	1	Gasket	
110513	1	Labyrinth	
110514	1	Spring	
110515	1	Cover	
110516	2	Gasket	(D)
110517	1	Oil seal washer	
110518	1	Seeger ring	
110519A	1	Bearing (external ring)	(D)
110519B	1	Bearing (internal ring)	(D)
110520	1	Collar ring	
110521	1	Collar cage	
110522	2	Collar nut	
110523	1	Oil seal washer	
110524	1	Bearing carrying shell	
110525	1	Ring nut	
110526	1	Vertical shaft	
110527	1	Oil seal washer	
110528A	1	Bearing (internal ring)	(D)
110528B	1	Bearing (external ring)	(D)
110529	1	Oil distributor washer	
110530	1	Oil distributor washer	
110531	1	Bearing	(D)
110532	1	Ring nut	
110533	1	Blocking screw	
110534	1	Shell support flange	
110535	1	Screw	
110536	1	Centering pin	
110537	1	Cushion	(D)

Part No	Qty	Description	
110538	1	Thrust block support	
110539	1	Key	
110540	1	Screw	
110541	1	OR gasket	(D)
110542	1	Gasket	(D)
110543	1	Pulley	
110544	3	Stop ring	
110545	1	Stop ring spacer	
110546	1	Stop ring spacer	
110547	1	Stop ring nut	
110548	1	Screw	
110549	1	Gasket	
110550	1	Oil pump	
110551	1	OR gasket	
110552	1	Flange on base	
110553	4	Washer	
110554	4	Screw	
110555	1	Gasket	
110556	1	Nipple	
110557	1	Recycle pipe	
110558	1	Ring nut	
110559	1	Gasket	
110560	1	Dowel	

P.A.: when servicing the vertical drive device, make sure you have all the parts marked (D), even though only the damaged parts need to be replaced.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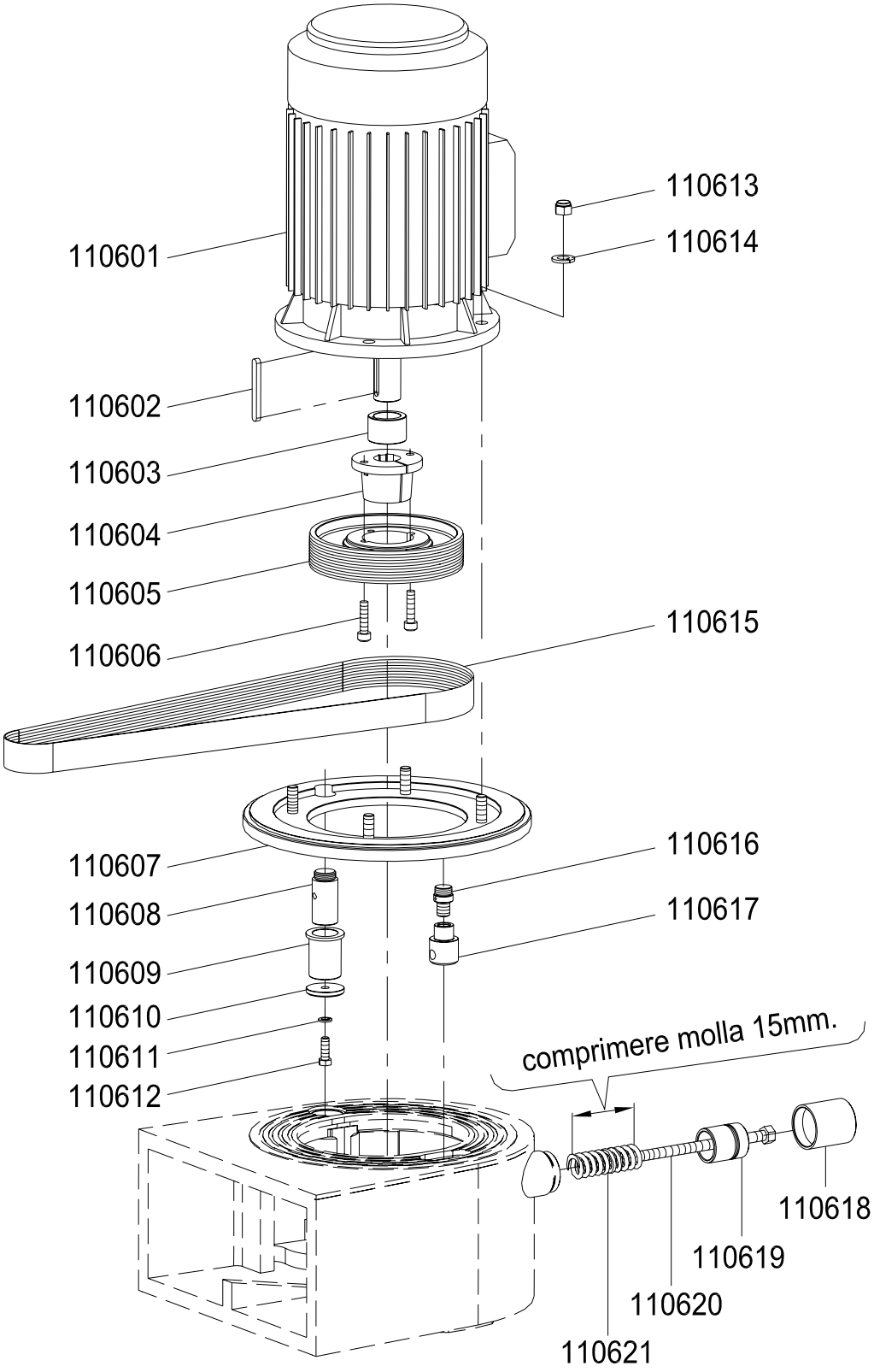
Part No	Qty	Description	
110601	1	Motor	
110602	1	Plug	
110603	1	Spacer	
110604	1	Locking bush	
110605	1	Pulley	(D)
110606	2	Locking nut	
110607	1	Flange on base	
110608	1	Pin	
110609	1	Bush	(D)
110610	1	Washer	
110611	1	Washer	
110612	1	Screw	
110613	4	Nut	
110614	4	Elastic washer	
110615	1	Driving belt	(D)
110616	1	Bolt	
110617	1	Pin	
110618	1	Covering	
110619	1	Bush	
110620	1	Tie rod	
110621	1	Spring	(D)

P.A.: when servicing the belt drive device, make sure you have all the parts marked (D), even though only the damaged parts need to be replaced.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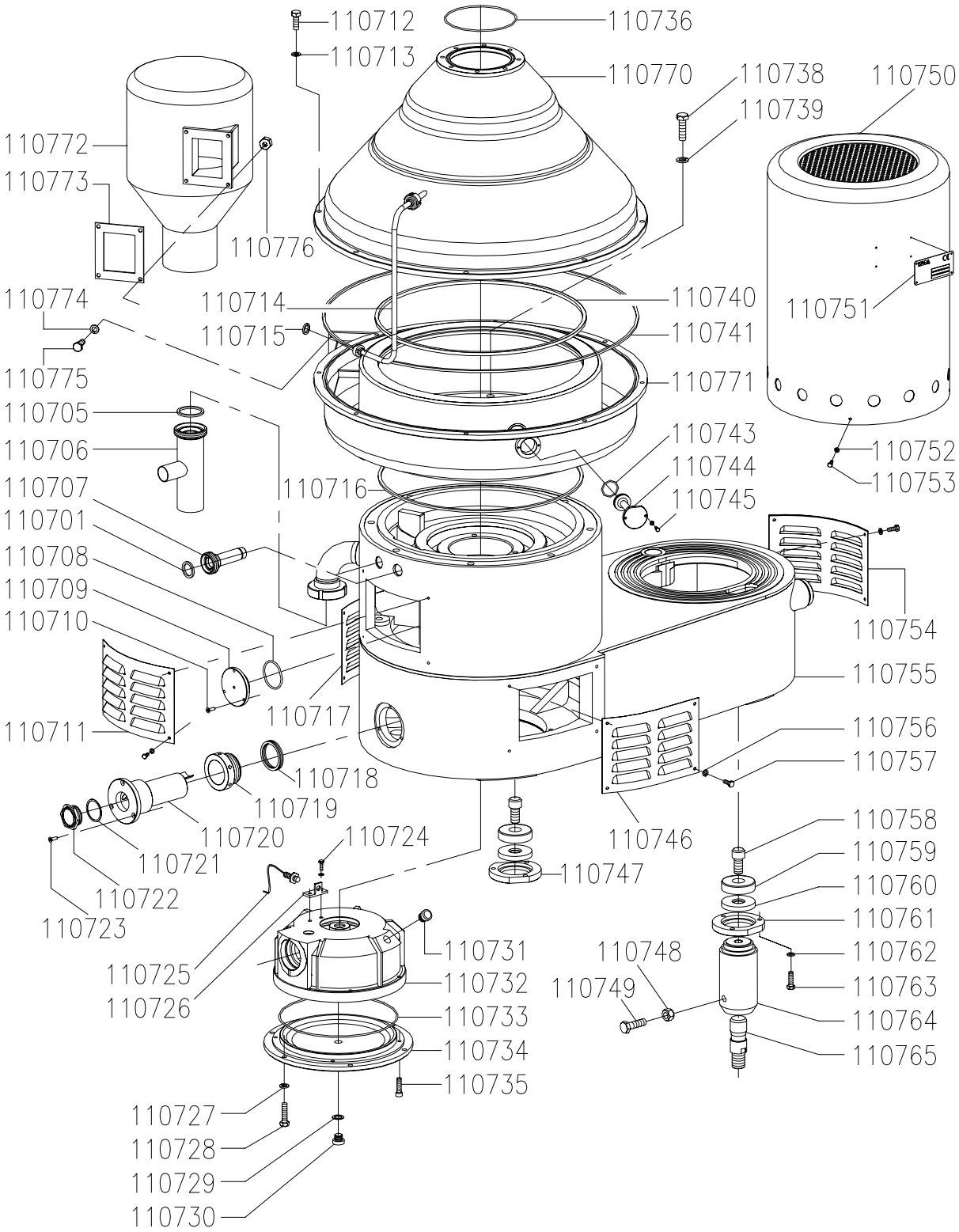
Part No	Qty	Description	
110701	2	Gasket	
110705	1	Gasket	(D)
110706	1	Discharge conduit	
110707	2	Water feed pipe	
110708	1	OR gasket	
110709	1	Oil chamber cover	
110710	3	Screw	
110711	1	Aeration door	
110712	8	Screw	
110713	8	Elastic washer	
110714	1	Siphon	
110715	1	Gasket	
110716	1	Gasket	
110717	1	Aeration door	
110718	1	Gasket	
110719	1	Locking ring	
110720	1	Oil collecting pipe	
110721	1	Gasket	
110722	1	Peephole	
110723	3	Screw	
110724	2	Screw	
110725	1	Proximity sensor	
110726	1	Sensor fixing rod	
110727	6	Washer	
110728	6	Screw	
110729	1	Gasket	
110730	1	Oil load cap	
110731	1	Oil discharge cap	
110732	1	Oil cup cover	
110733	1	Gasket	
110734	1	Oil cup flange	
110735	6	Screw	
110736	1	OR gasket	
110738	8	Screw	
110739	8	Elastic washer	
110740	1	Nylon gasket	
110741	1	Gasket	
110743	2	OR gasket	
110744	1	Cyclone cap	

Part No	Qty	Description	
110745	2	Screw	
110746	1	Aeration door	
110747	2	Front foot flange	
110748	4	Nut	
110749	4	Screw	
110750	1	Motor casing	
110751	1	Plate	
110752	4	Washer	
110753	4	Screw	
110754	1	Aeration door	
110755	1	Base	
110756	16	Washer	
110757	16	Screw	
110758	4	Screw	
110759	4	Cushion	
110760	4	Counterflange	
110761	2	Rear foot flange	
110762	12	Elastic washer	
110763	12	Screw	
110764	4	Foot	
110765	4	Pin	
110770	1	Bowl cover	
110771	1	Cyclone	
110772	1	Expansion chamber	
110773	1	Gasket	
110774	4	Washer	
110775	4	Screw	
110776	4	Nut	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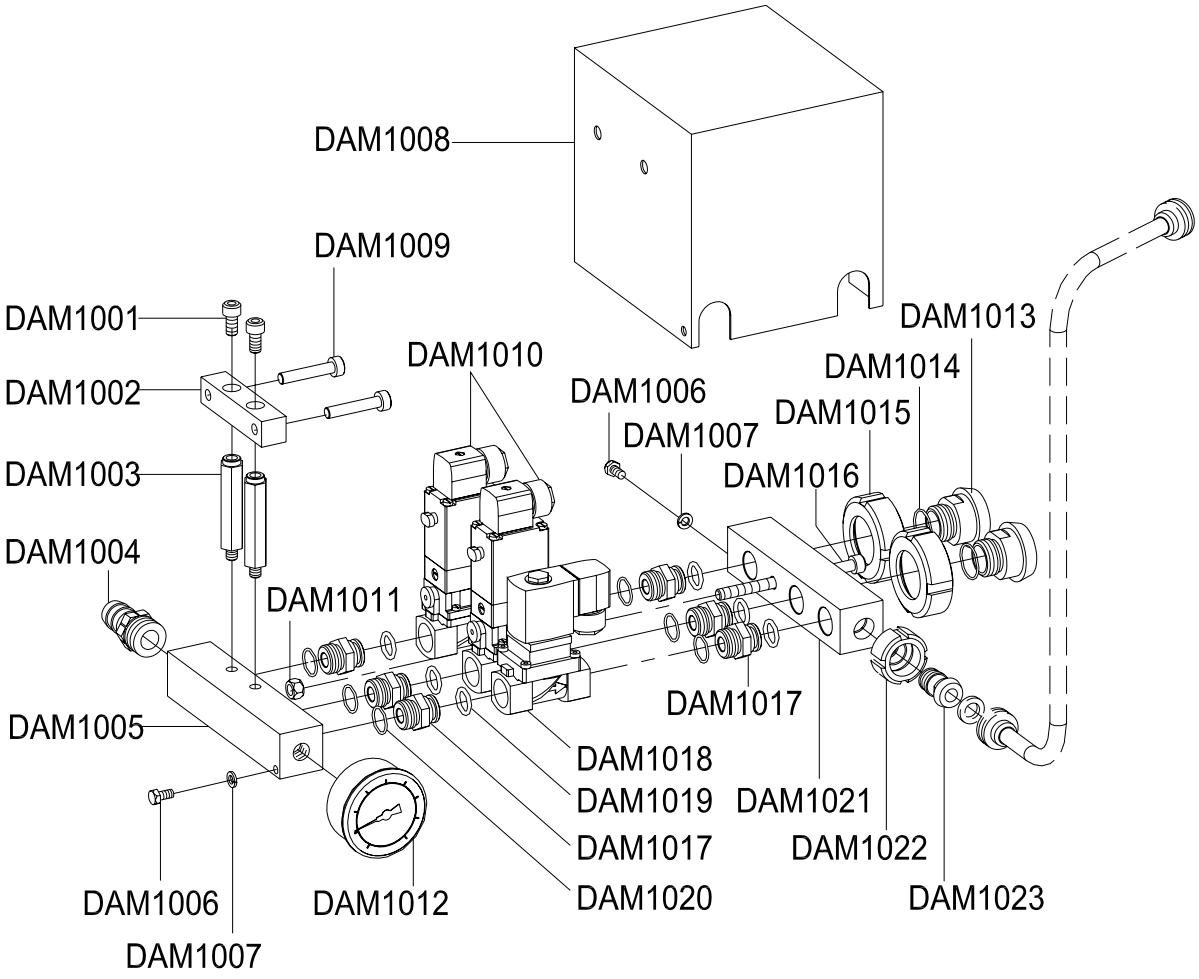
Part No	Qty	Description	
DAM1001	2	Screw	
DAM1002	1	Pushbutton collector	
DAM1003	2	Spacer	
DAM1004	1	Nipple	
DAM1005	1	Distributor	
DAM1006	2	Screw	
DAM1007	2	Elastic washer	
DAM1008	1	Guard	
DAM1009	2	Pushbutton	
DAM1010	2	Solenoid valve	(D)
DAM1011	1	Nut	
DAM1012	1	Manometer	(D)
DAM1013	2	Nipple	
DAM1014	2	Gasket	
DAM1015	2	Nut	
DAM1016	1	Tie rod	
DAM1017	6	Nipple	
DAM1018	1	Solenoid valve	(D)
DAM1019	6	Gasket	
DAM1020	6	Gasket	
DAM1021	1	Duct	
DAM1022	1	Nut	
DAM1023	1	Nipple	
DAM1030	1	Coil	(D)
DAM1031	1	Set of gaskets	(D)
DAM1032	1	Coil	(D)
DAM1033	1	Set of gaskets	(D)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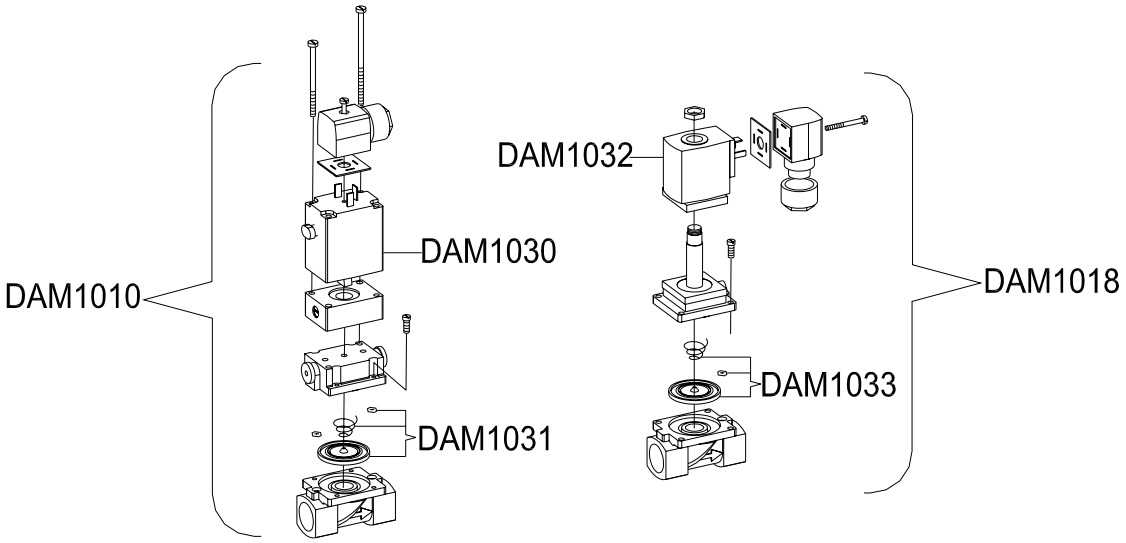
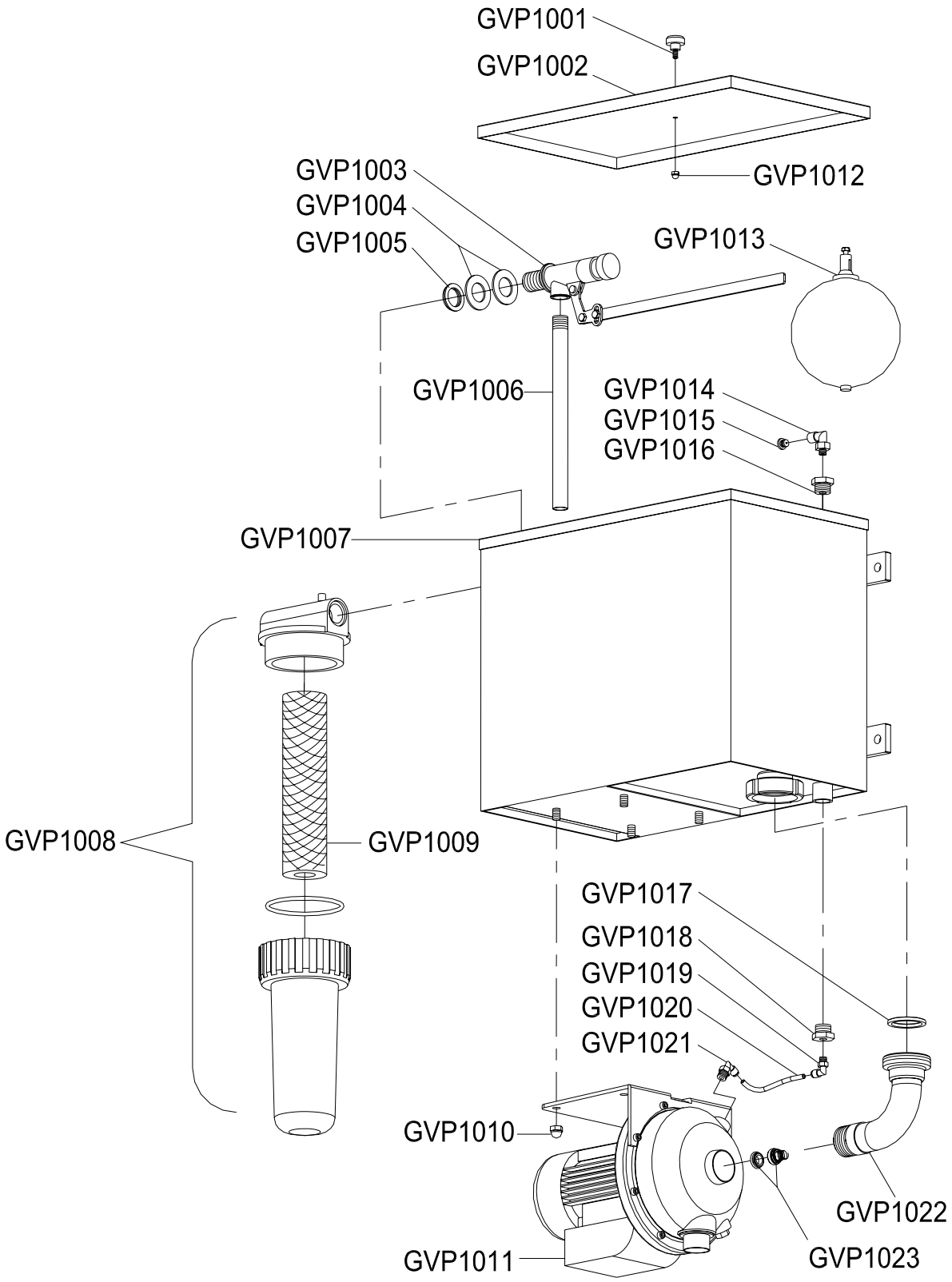
DAM1020
DAM1021
DAM1022
DAM1023


DAM1010
DAM1030
DAM1031
DAM1032
DAM1033
DAM1018

Part No	Qty	Description	
GVP1001	1	Knob	
GVP1002	1	Lid	
GVP1003	1	Float valve	
GVP1004	2	Gasket	(D)
GVP1005	1	Blocking nut	
GVP1006	1	Feeding sleeve	
GVP1007	1	Tank	
GVP1008	1	Filter	
GVP1009	1	Filter cartridge	(D)
GVP1010	4	Nut	
GVP1011	1	Pump	
GVP1012	1	Nut	
GVP1013	1	Float	
GVP1014	1	Nipple	
GVP1015	1	Calibrated nozzle	
GVP1016	1	Reduced nipple	
GVP1017	1	Gasket	
GVP1018	1	Nipple	
GVP1019	1	Union joint	
GVP1020	1	Recycle pipe	
GVP1021	1	Union joint	
GVP1022	1	Pump inlet duct	
GVP1023	1	Pump seal	(D)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GVP1009
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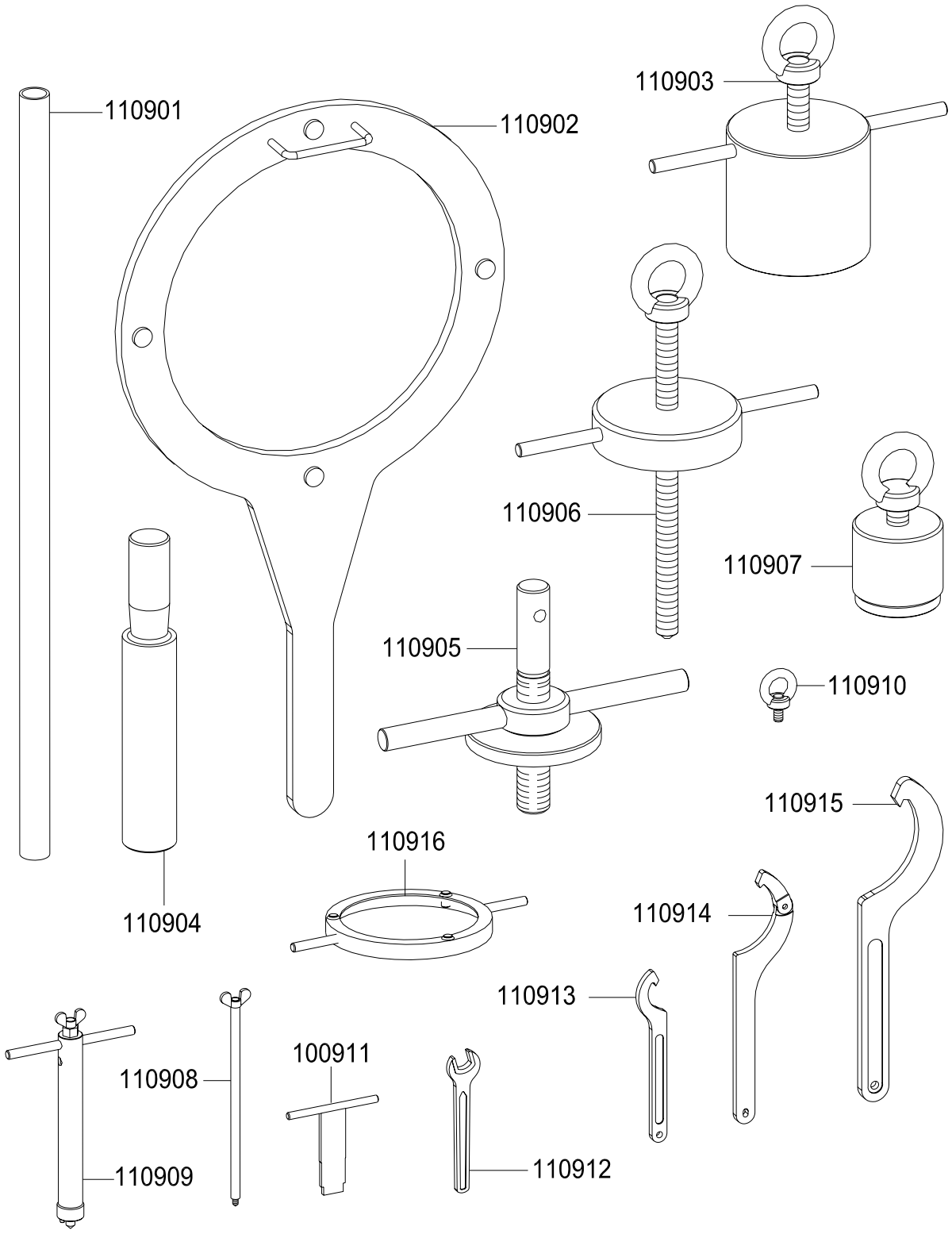
GVP1020
GVP1021
GVP1010
GVP1022
GVP1011
GVP1023

Part No	Qty	Description	
110901	1	Extension arm	
110902	1	Large coupling ring spanner	
110903	1	Bowl top extracting wrench	
110904	1	Mallet	
110905	1	Disc compression tool	
110906	1	Sliding ring extracting wrench	
110907	1	Bowl shell lifter	
110908	1	Valve piston extracting spanner	
110909	1	Valve body extracting spanner	
110910	2	Eyebolt	
110911	1	Feeding sleeve spanner	
110912	1	Spanner	
110913	1	Hydraulic joint spanner	
110914	1	Vertical shaft nut wrench	
110915	1	Bowl top ring spanner	
110916	1	Cover ring spanner	
VARIOUS ITEMS			
110951	1	Gear oil can	
110952	1	Grease (Gr.100)	


110901
110902
110903
110904
110905
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110908
110909
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110911
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110913
110914
110915
110916

I CONTROL BOARD

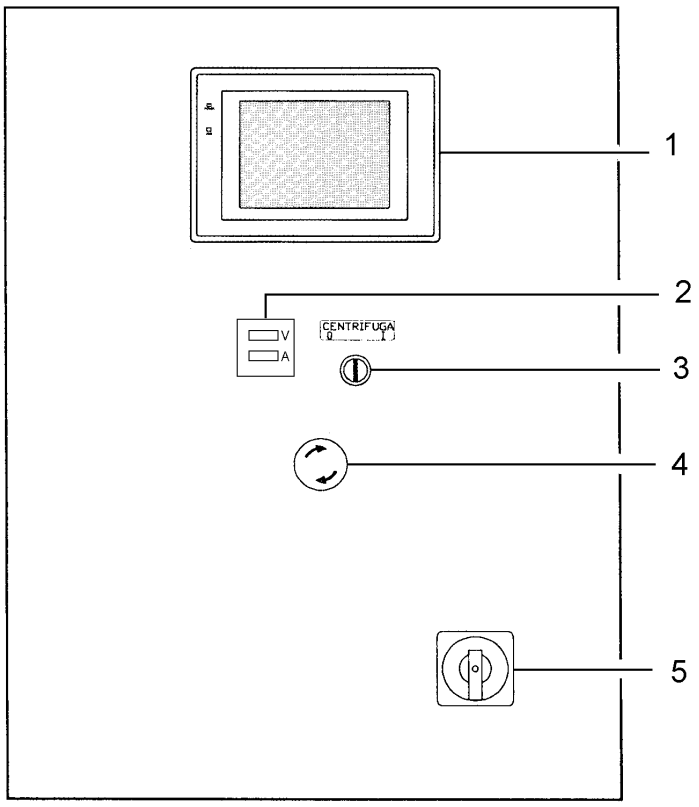
I/1. The control board is usually installed on a platform connected to the clarifier; if the clarifier is supplied without platform the control panel must be installed on the wall and the distance from separator must not be over 25 metres.

The panel protection code is IP54; touch screen, and other elements are selfprotected.

Avoid to installation in wet spaces.

Technical data:

■ Standard supply voltage	400V +/- 5 %
■ Frequency	50 Hz
■ Output control voltage	24Vcc
■ Panel	Stainless steel sheet
■ Dimensions	600x1550x350 mm
■ Weight	100 kg
■ Protection code	IP 54



Control panel description

1. Touch-screen
2. Voltmeter-Amperometer
3. Separator start – stop switch
4. Emergency button
5. Main switch

RE85V/S/AP touch screen instructions

A. Foreword

The control panel presents touch screen technology so all operations are selected by merely placing a finger over the button.

To start :

Switch on the panel and wait for the program to load

After a few seconds from completion the following screen will appear

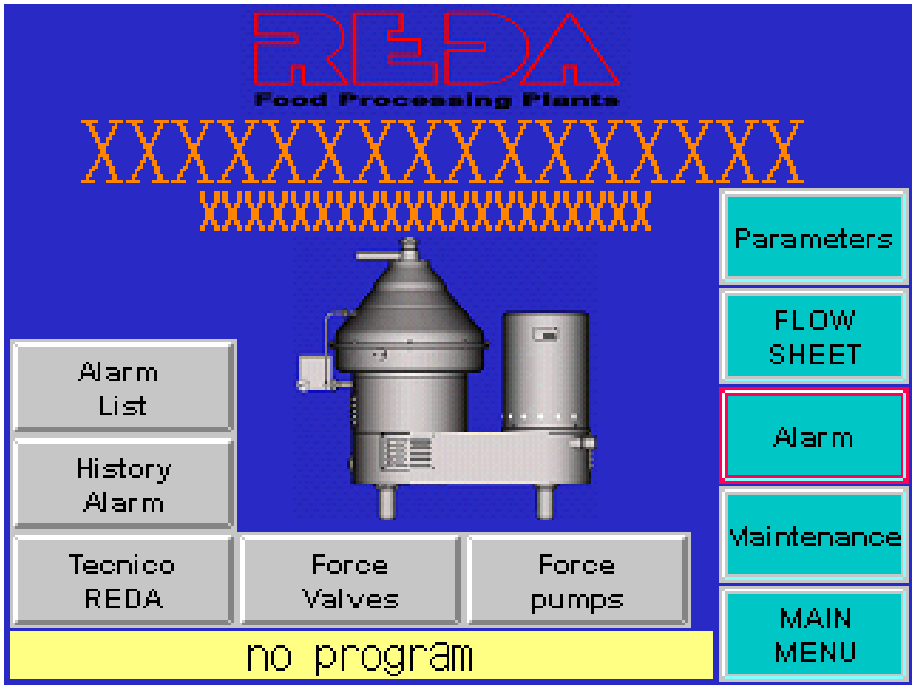


Fig. A/1

The screen is divided into two parts :

- Turquoise buttons (some viewed on all pages):
  - **Parameters = link to parameters page (times and programs) par. B.1**
  - **FLOW SHEET = link to main work page (par. B.2)**
  - Alarms = link to alarms page
  - Maintenance = link to maintenance page
  - Main menu = back to main page **(Fig. A/1)**
- Grey buttons (specific to this page) :
  - Alarm list = to view the alarms installed
  - History alarm = to view the list of alarms tripped

- Tecnico REDA = links to special controls and adjustments page (protected by general password)
- Force valves = to manually override valve actuation (protected by a level 1 password)
- Force pumps = to manually override pump and motor actuations (protected by a level 1 password)

B. Main work pages

B.1 Parameters page

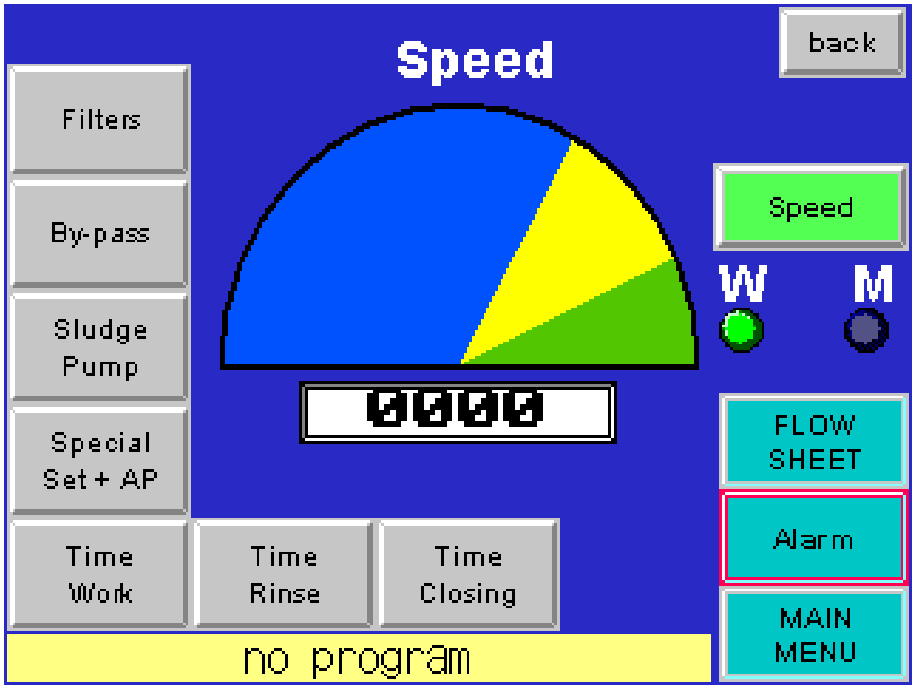


Fig. B/1

The centre of the parameters page shows a graphic diagram of the speed (indicating the drum speed). It has a purely indicative function.

The green button “Speed” V – M selects the separator’s operating speed:

- select maximum speed (M) when treating wine
- select reduced speed (V) when treating must

The selected speed is highlighted by green coloration.

On the right there are the three turquoise buttons described at section A.

The left and bottom grey button bars are links to the following pages for entering the times and activate special programs (some programs can only be activated if its corresponding optional accessory has been installed):

- **Time work = link to page B.2**

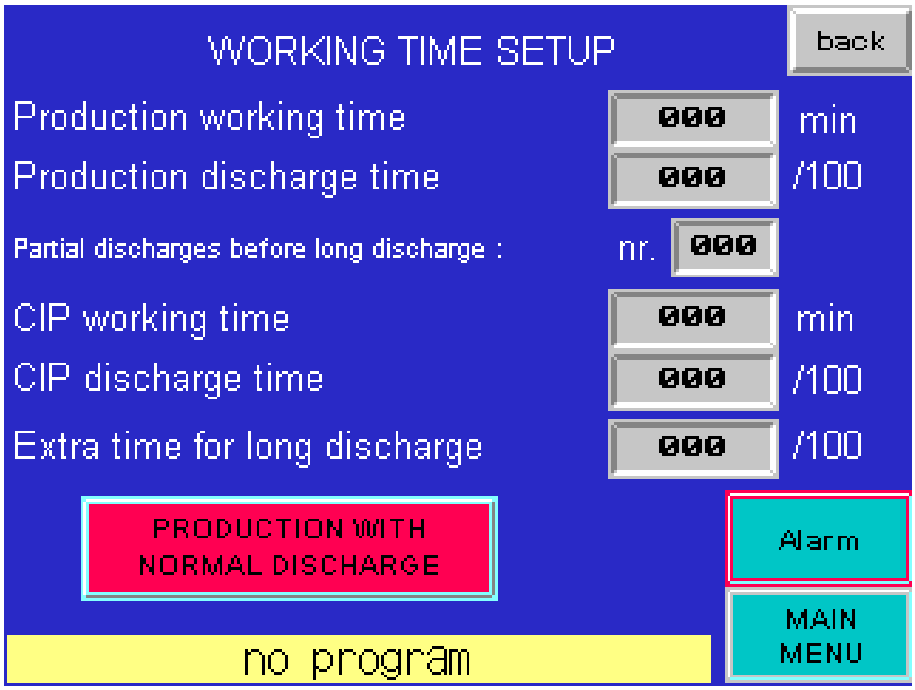


Fig. B/2

The following times have to be entered:

- Production working time: the period of time between one discharge and the next during the processing (PROD cycle = production cycle set)
- Production discharge time: the discharge time for a partial discharge. It should be set to discharge at least 10-12 litres a time
- Partial discharges before long discharge: when partial discharge cycle is activated, it sets the number of partial discharges before a long discharge is operated.
- CIP working time: the period between one discharge and the next during the CIP (CIP cycle set). Normally set to 5 minutes
- CIP discharge time: the discharge time during the CIP. It is normally set at the same time as the discharge in production
- Extra time for long discharge = the time added to the partial time setting when a long discharge is operated. Normally set to 30 hundredths of a sec.

The red “PRODUCTION WITH NORMAL DISCHARGE” button selects the production cycle (set of partial discharges followed by a long discharge / only long discharges)

- **Time rinse = link to page B.3**

Fig. B/3

The following times have to be entered :

- Pre-rinse time : the delay between the discharge command and the discharge itself (for a long discharge this is the delay between the product valve closing and the bowl discharge)
- Post-rinse time : the rinse time after a discharge
- Cooling cycle time: the amount of time between one cooling cycle and the next
- Cooling time: the amount of time during which water is delivered to the bowl to cool it .down

The red “RINSING OFF (during production)” button allows to activate or deactivate rinsing and cooling cycles (deactivated by default)

- **Time closing = link to page B.4**

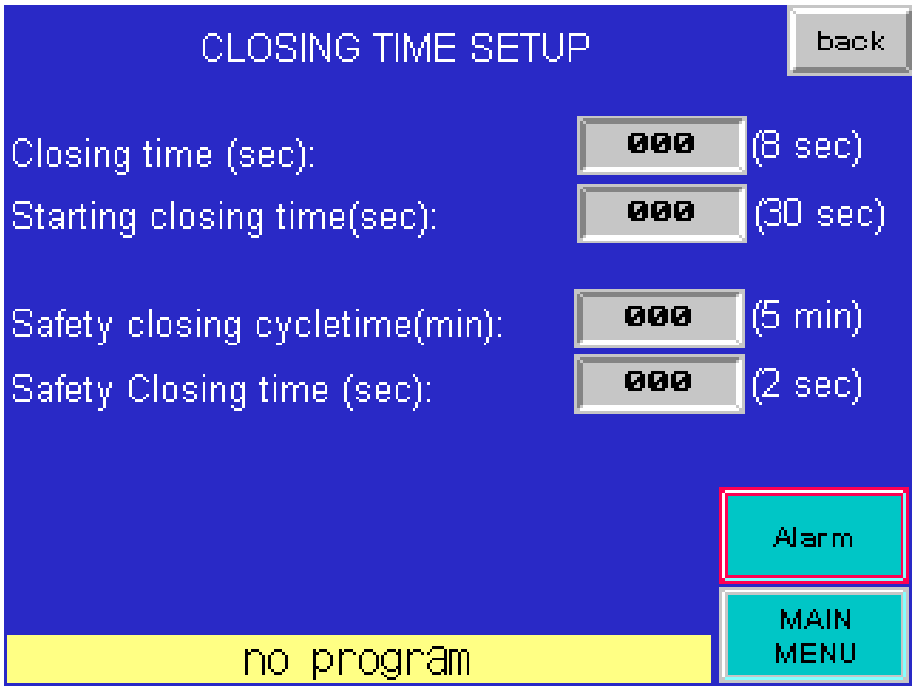


Fig. B/4

The following times have to be entered:

- Closing time: the closing time after each discharge
- Starting closing time: the closing time on start-up
- Safety closing cycle time: the amount of time between one safety closing time and the next
- Safety closing time: the length of the safety closing cycle (closing water is delivered to recover any closing water leaks due to worn gaskets).

- **AP and special settings – speed = link to page B.5**

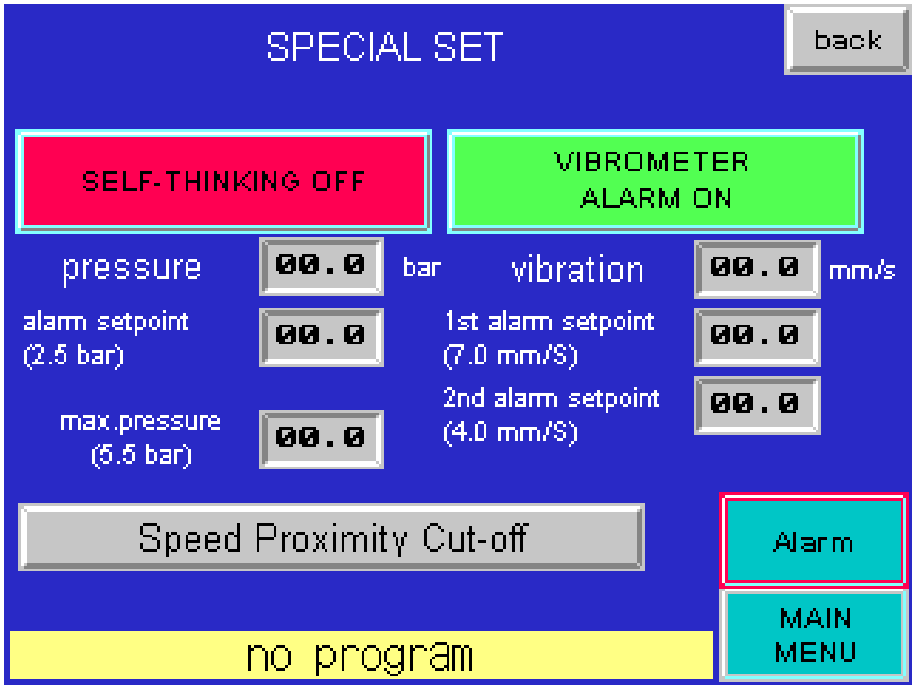


Fig. B/5

From this page, the following functions can be controlled:

- AP System (only for AP models)

  AP system allows control of discharge by operating discharges only sludge chamber's complete filling.

  To activate the AP system, press the "AP OFF" button, which turns green and the writing changes to "AP ON".

  The alarm threshold (set at about 2,5 bar) sets the AP system intervention threshold (when pressure falls below this value, discharge is operated).

  Maximum pressure threshold outputs a visual alarm: in this case working pressure is too high and must be lowered.

- Vibration level control:

  The separator is provided with a vibration control device with 2 alarm thresholds:

  - Threshold 1 is active during separator' start up, when vibrations are wider than during normal operation
  - Threshold 2 is active during normal operation

  Vibration level control may be defeated by the operator by pressing "vibration alarm ON" button: the button will turn red and the writing will change to "vibration alarm OFF".

  Since this operating mode presents a potential hazard (i.e. it removes the safety on the centrifuge) it is protected by a level 1 password.

  The vibration level control must never be defeated unless a special situation arises and the control must be restored as soon as possible.

- Speed proximity cut-off

  This button will cut-off the speed control if there are problems with the proximity signal.

  When the button is pressed it changes colour and the message changes to "Speed control cut-off".

  Since this operating mode presents a potential hazard (i.e. it removes the safety on the centrifuge) it is protected by a level 1 password.

  The speed control must never be defeated unless a special situation arises and the control must be restored as soon as possible.

- **Sludge pump = link to page B.6**

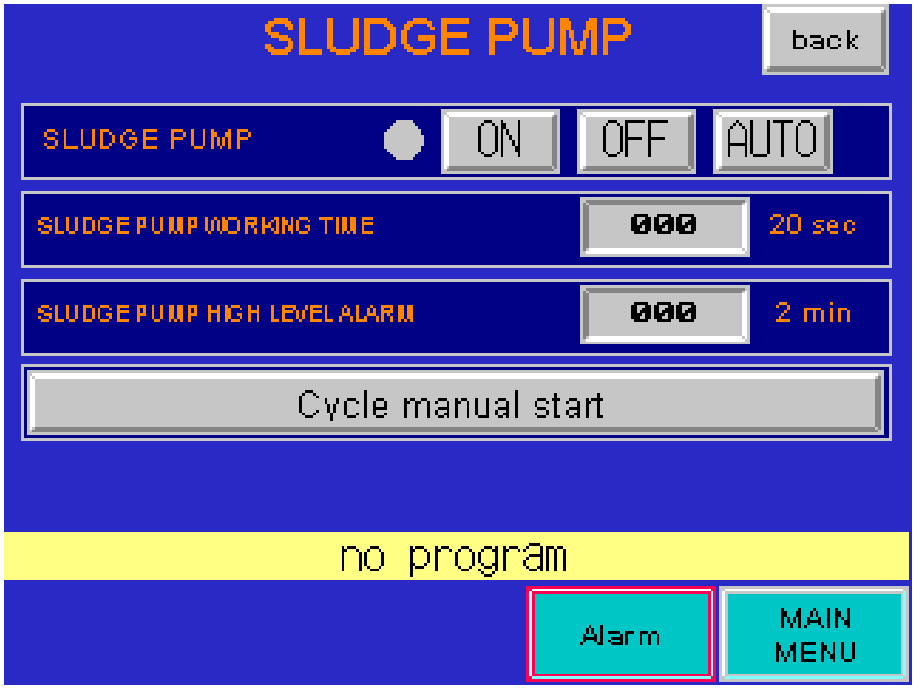


Fig. B/6

This page controls the sludge pump.

- Sludge pump activation/control: ON, OFF, AUTO

  It's used to check the pump's correct working (use only during tests)

- Sludge pump working time

  Time necessary to empty the sludge chamber after the level probe signals the minimum level

- Sludge pump high sludge level alarm

  It's the maximum amount of the sludge pump working time. Exceeding this time means there is a leakage from the separator's bowl.

"Cycle manual start" button allows to have the separator working automatically during the pre-set sludge pump working time.

- **By-pass = link to page B.7**

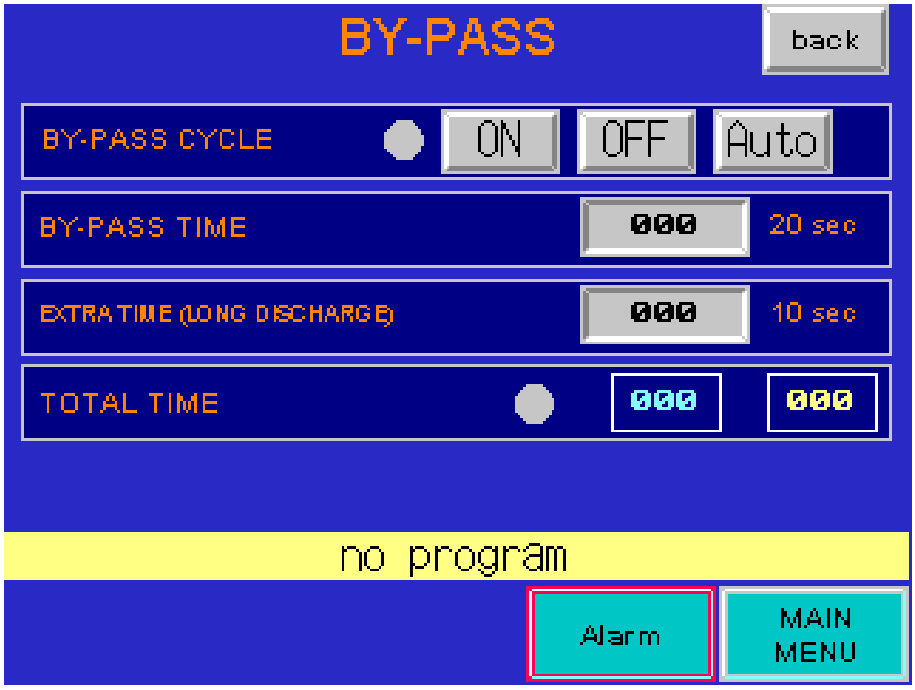


Fig. B/7

This page controls the optional by-pass system.

- By-pass cycle activation/control: ON, OFF, AUTO

  Used to activate or deactivate the by-pass cycle: usually set to ON during production cycle start-up or during product collecting tanks' switching.

- By-pass time: sets the by-pass recycle duration so to reach the desired clarification
- Extra time (long discharge): it's the time added to by-pass after a long discharge
- Total time: shows the active by-pass time

- **Brush filter = link to page B.8**

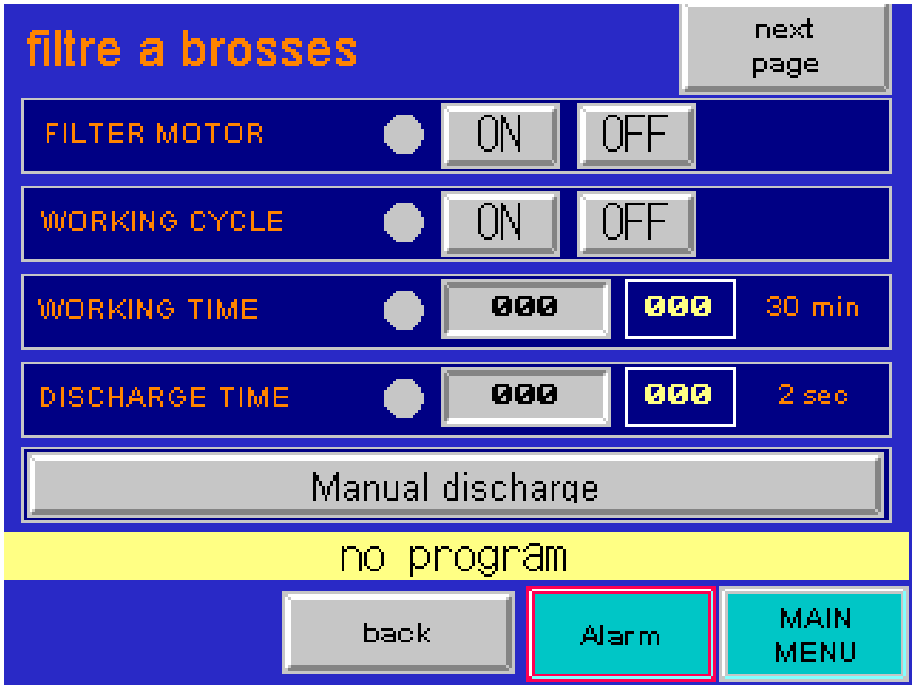


Fig. B/8

This page controls the optional brush filter.

- Filter motor: switch to ON position to activate filter rotation
- Working cycle: switch to ON position to activate work cycle and automatic discharge
- Working time: amount of time between two consecutive discharges
- Discharge time: it's the discharge duration
- "Manual discharge" button: commands a discharge cycle (duration is equal to the duration set on discharge time)

- **Hydrocyclon = link to page B.9**

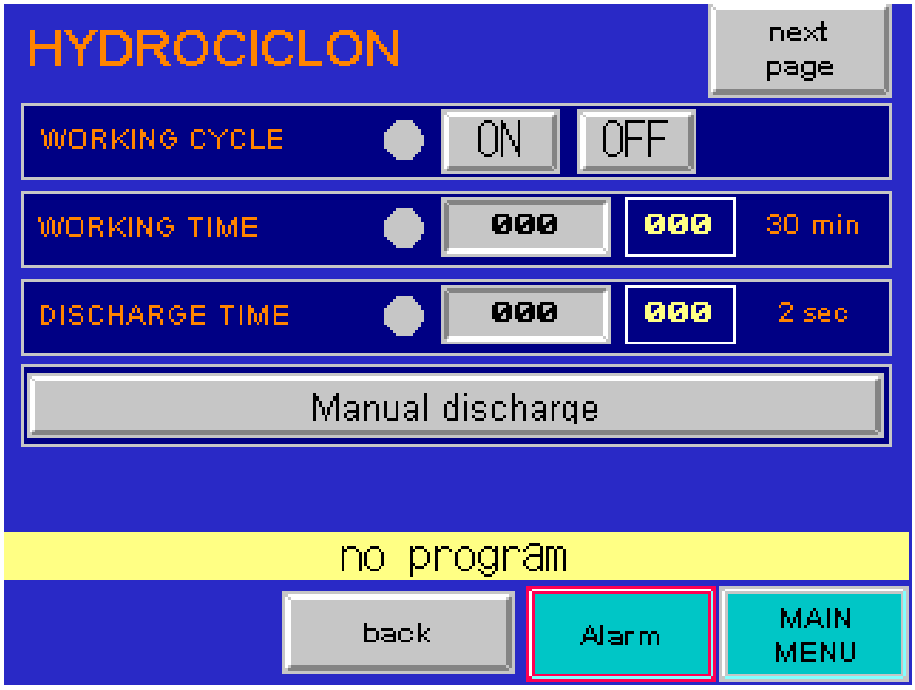


Fig. B/9

This page controls the optional hydrocyclon.

- Working cycle: switch to ON position to activate the hydrocyclon's discharge cycle
- Working time: amount of time between two consecutive discharges
- Discharge time: it's the discharge duration
- "Manual discharge" button: commands a discharge (duration is equal to the duration set on discharge time)

B.2 Flow-sheet page

The main work page where it's possible to control the centrifuge operation and check the work cycles set (Fig. B/10).

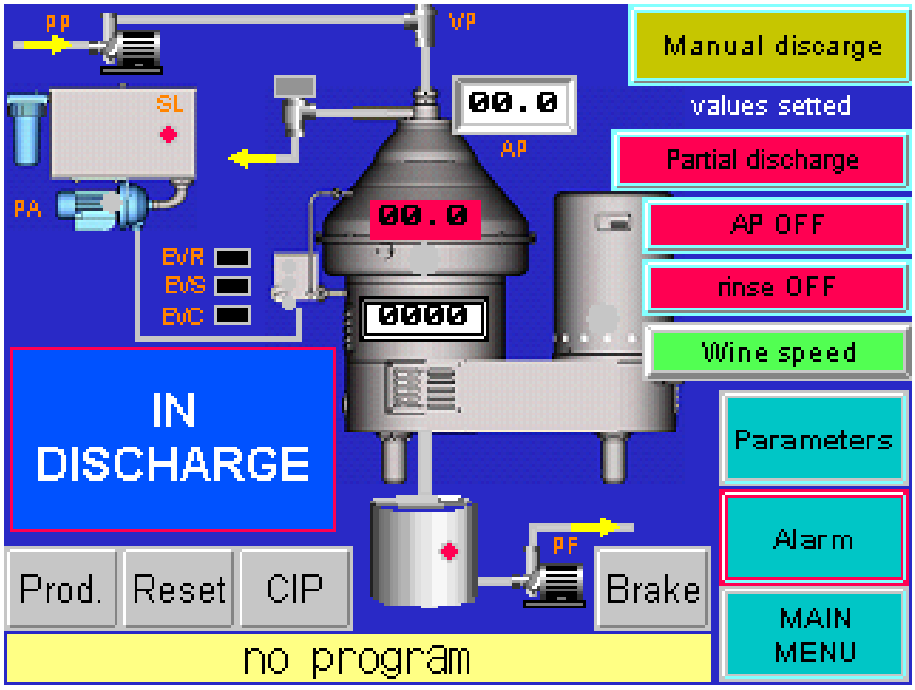


Fig. B/10

From this page most of the centrifuge's work functions can be controlled:

- **Work cycle entry buttons**:
  - **Prod**: to enter the production cycle (wine or must treatment).
    The cycle time appears in the top box. Select **Set** next to Prod to change time (Set next to **nr** indicates the number of partial discharges before the long discharge)
  - **Reset** : to cancel the work cycle
  - **CIP**: to enter a wash cycle (use the same sequence as the Production cycle but with a different timer that appears in the higher box and is again changed using **Set**)
- **Brake button**: engages the motor brake. It must only be used when the centrifuge has to be stopped rapidly.
- **"Program" buttons**: these buttons allow to rapidly select the special functions (these buttons also exist in other pages):
  - **Partial discharge-Long discharge**: selects the discharge type. In case of partial discharge it commands a discharge without flow interruption, in case of long

discharge it interrupts the flow for 2 to 3 seconds and the discharged quantity is greater; in case of partial discharge, however, the cycle also includes a periodical long discharge. The number of partial discharges before long discharge can be set in the lower left box or in the “working times” page

- **AP off – AP on**: activates or deactivates the AP system. A box appears when the AP intervention pressure can be set (for AP intervention regulation, refer to AP + special set)
- **Rinsing OFF – Rinsing ON**: activates the rinse function on the production cycle (deactivated by default)
- **Wine speed – Must speed**: selects different speeds according to the treated product.

- **Turquoise buttons**: various links as viewed on every page :
  - **Parameters**: to start-up the filter operation and change discharge times or other functions
  - **Alarms**: link to the alarms page
  - **Main menu**: to return to the initial main page

B.3 Alarms page

The alarms page can be accessed from any other page while the history alarm and alarm list is only accessible from the main page (Fig. A/1)

The following pages are available :

- Alarms page (Fig. B/11)

Fig. B/11

- History alarm page (Fig. B/12)

Fig. B/13

- Alarm list page showing all the alarms installed (Fig. B/14)

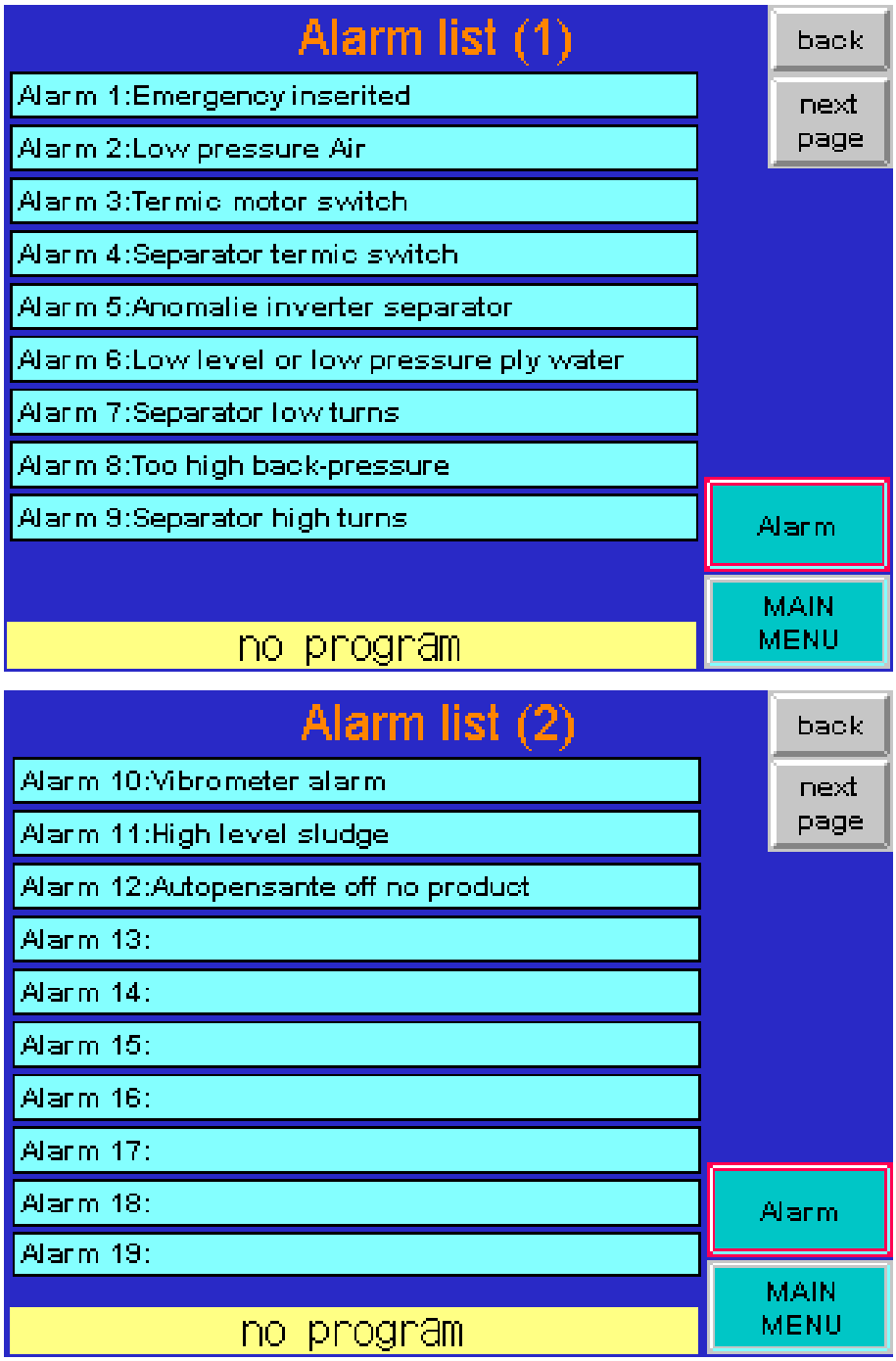


Fig. B/14

B.4 Maintenance page

The maintenance page gives a general guideline on the technical assistance cycle to schedule (Fig. B/15).

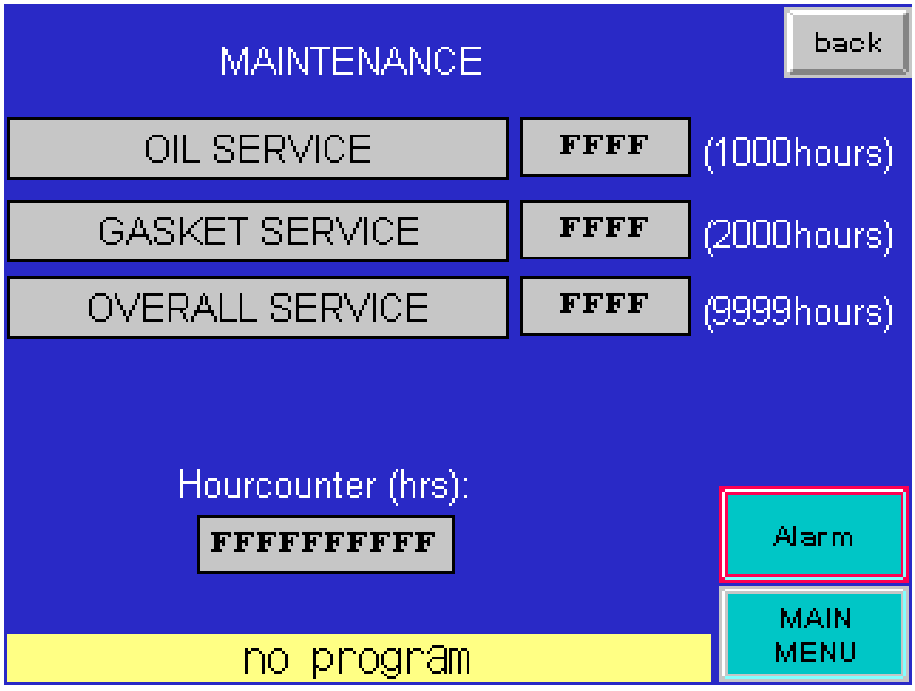


Fig. B/15

C. Force pages (level 1 password)

The force valves and pumps pages are only accessible from the main page (Fig. A/1) and selected by the “force valves” or “force pumps” buttons.

The pages are protected by a level 1 password.

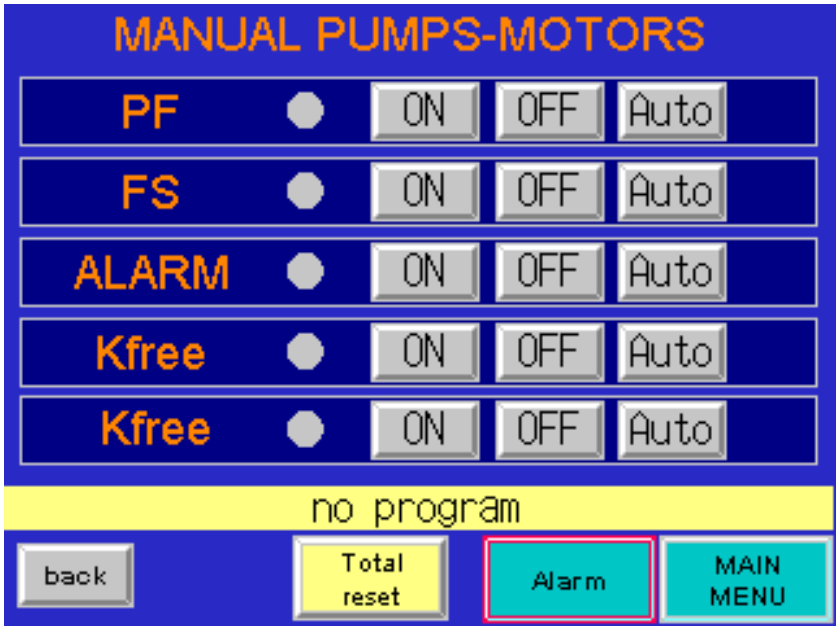


Fig. C/1

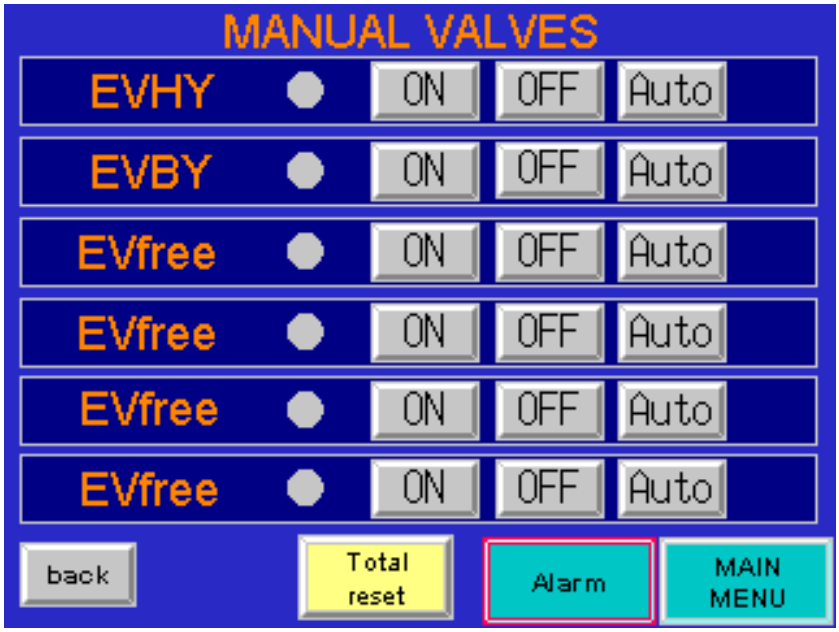


Fig. C/2

Press ON to activate the selected motor, OFF to cut it off and Auto to leave the operating mode in automatic.

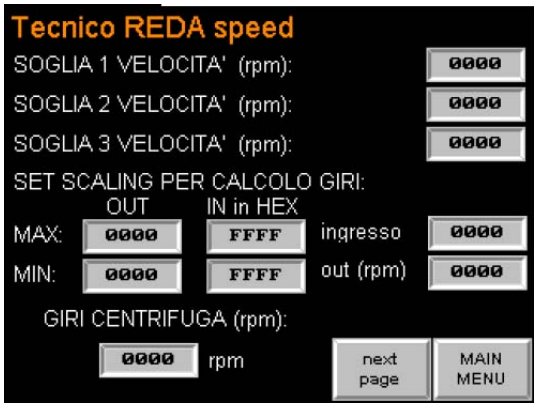
D. Tecnico REDA pages (general password)

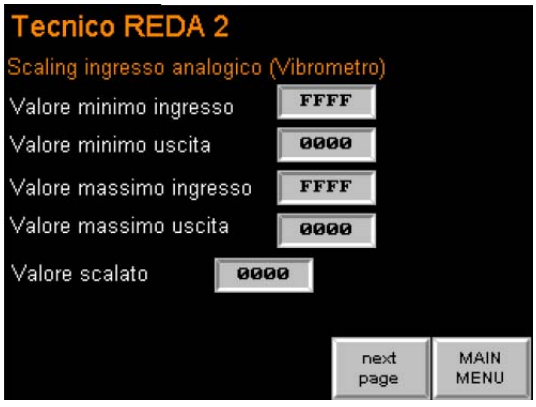
This page is accessed from the main page by pressing the “Tecnico REDA” button. Access is protected by the general password.

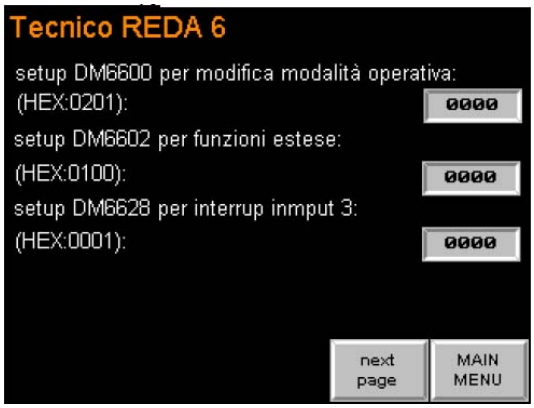
These parameters in these pages are normally set during factory testing and no changes should be necessary by the operator.

Any changes must be discussed with the REDA technical assistance : **unauthorised changes may lead to operating problems with the machine and its accessories.**

The following pages are available :

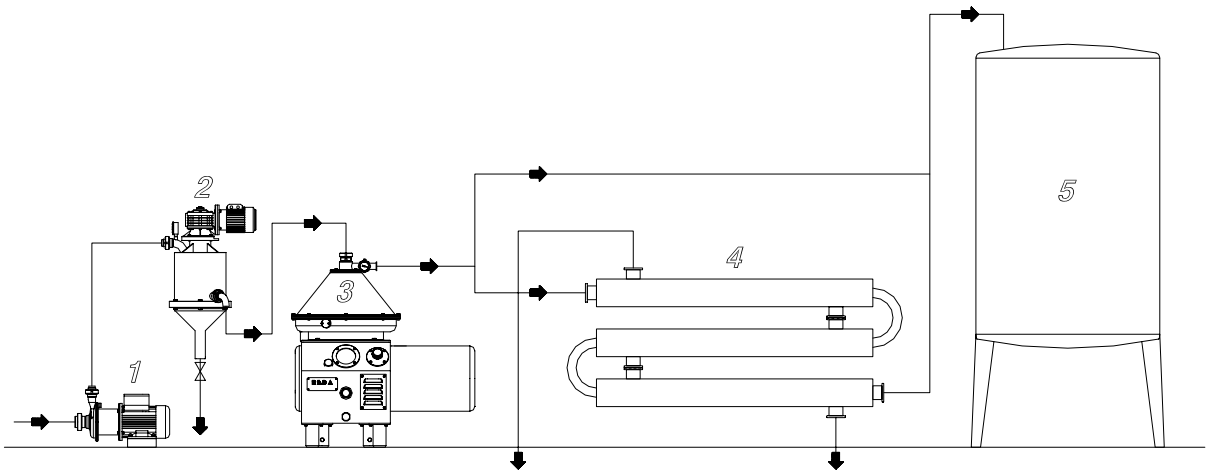






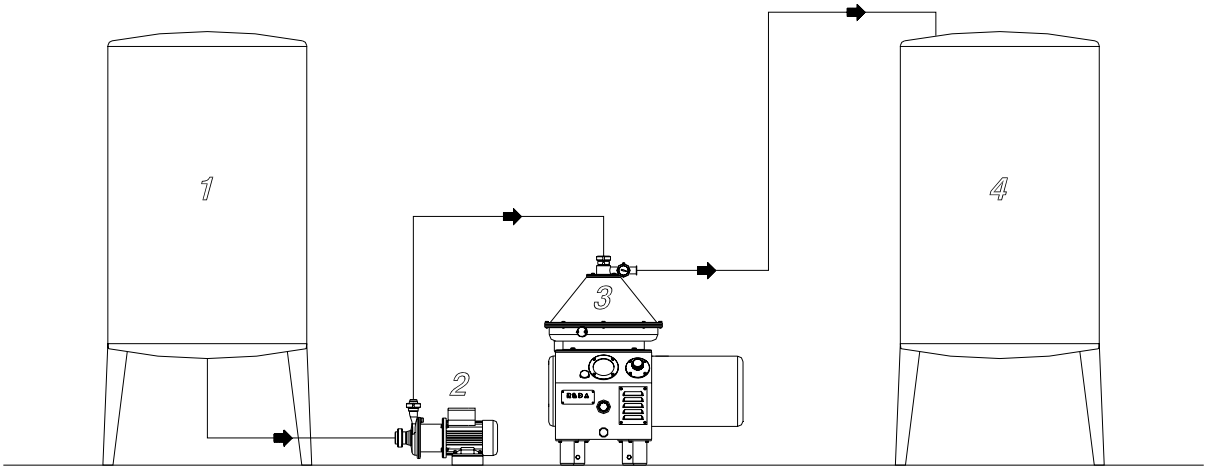
Instructions for any changes can be requested directly from the REDA technical assistance.

MUST SEPARATOR CONNECTIONS



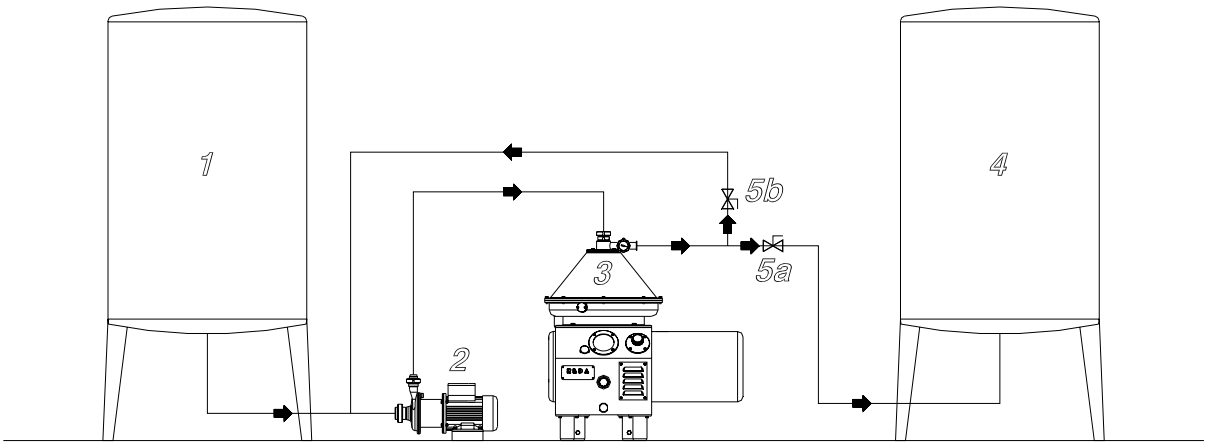
1. Feed pump for must
2. Brush filter model FS with automatic discharge
3. Separator
4. Hairpin heat exchanger for cooling
5. Fermentation tank

WINE SEPARATOR CONNECTIONS



1. End fermentation wine tank
2. Wine feed pump
3. Separator
4. Clarified wine tank

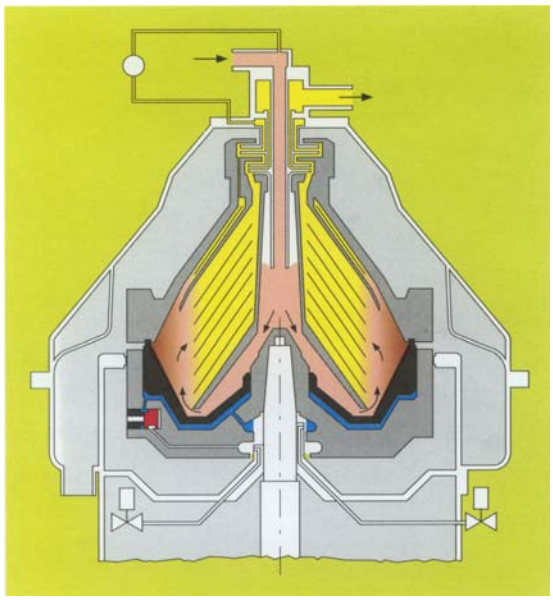
SPARKLING WINE SEPARATOR CONNECTIONS



1. Sparkling wine tank
2. Sparkling wine feed pump
3. Separator
4. Clarified sparkling wine tank
5. Discharge by-pass valves

AP model

AP system allows bowl discharge in relation to the optimum sludge chamber filling.



Discharge is operated when the liquid feeler's pressure falls below a minimum threshold value, as a consequence of the sludge chamber filling.

This system allows to greatly reduce the loss of product during discharge because the separator carries out discharge only when the sludge chamber is completely filled.

The AP system also prevents these problems caused by variations of sludge quantity in the product:

- Dirty product at outlet, caused by sludge chamber being completely filled before temporized discharge
- Bowl clogging caused by sudden variations of sludge quantity

L/1. Brush filter

L/1.1. Start-up and operation

The product inlet is by pipe on the top, the outlet from the pipe at the base of the filter (radial side); the discharge of the sludge by the bottom pipe at the end of the conical part of the filter.

During start-up when the product is fed let the air discharge valve (close to the manometer) open. Air venting needs only few seconds.

Feed pressure should not exceed 3 bar.

Now it is possible to start the brush rotation:

- turn the switch BRUSH FILTER in AUT position.
- select on keyboard (filter timer button) the filter working and the discharge time

L/1.2. Filter Timer button

The brush filter is controlled by Brush Filter button.

To regulate push the above button, then :

- Brush filter = ON/OFF (select whether to insert the automatic discharge cycle)
- production = working time between two consecutive discharges (10-30 minutes)

- discharge = discharge duration (set to 2-3 seconds)
- pushing F4 a discharge is done

An increase in the pressure on manometer means that the filter is dirty and a discharge needs to be carried out.

In this case it is possible to make a discharge pushing BRUSH FILTER and then F4 DISCHARGE, then reducing the production time.

After every discharge air bubbles may form inside the filter which can reduce the working filtering surface.

Every 3 to 4 discharges open the air venting valve close to the manometer.

The filter cleaning has to be done in line with the clarifier, making a manual discharge every 4-5 minutes and a total discharge at the end.

To completely empty the filter, stop the feeding pump and close the inlet valves, then leave the air discharge valve open and push F4-DISCHARGE (after having selected BRUSH FILTER) up to complete emptying of the filter.

L/1.3. Manual periodical cleaning

Be careful the main switch on control board is in OFF position.

Take out the pin on one side of the filter tank support.

Turn the filter tank of 90° and use the same pin to block the filter in horizontal position.

Loosen the screw and remove the conical chamber.

Loosen the central shaft screw and remove the complete shaft.

Loosen the three screw that block the filter cage and remove it.

The filter cage must be washed making sure to clean clogged the holes.

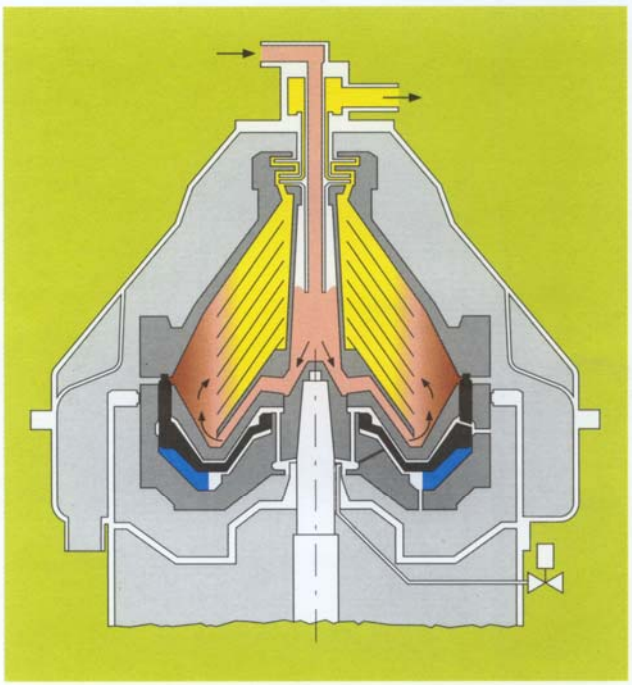
L/1.4. Reassembling

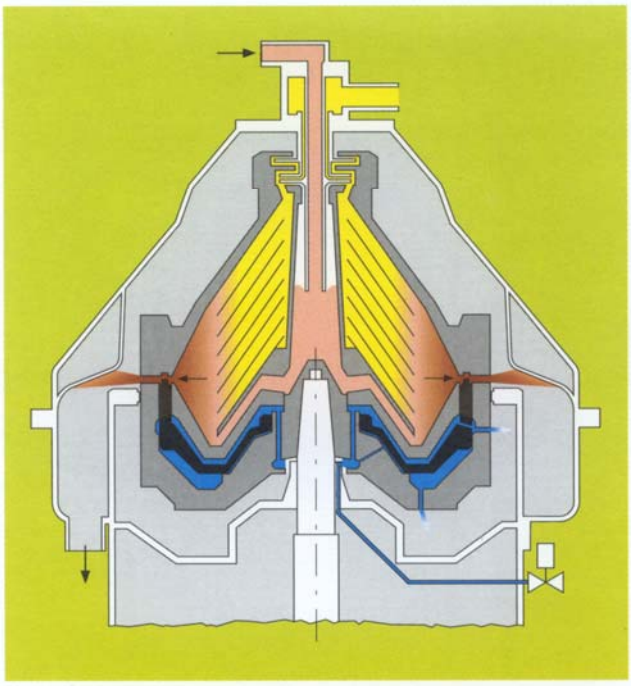
Reassemble the filter cage making attention to the seat on the filter tank backside, then fix it with the three screws.

Insert the shaft with the brushes into the pin set in the back of the filter tank, then fix it by screwing the central shaft-pin

Reassemble the conical chamber and turn back the filter into vertical position.

Feed again the filter checking no product loss verifies from the gasket (if needed, tighten the screws).





DISCHARGE SYSTEM

REDA separators with automatic clearing bowl are able to automatically purge sludge at time intervals which can be set by the operator on the control panel.

During start-up, water is pumped under the sliding ring, that, due to the centrifugal force pressure, lifts up and closes the openings on the bowl bottom (Fig. L/1).

At preset intervals water is pumped to the bowl valve.

The water pressure moves the valve piston so to let the drain off hole open: this way the bowl bottom lowers and sludge are discharged (Fig. L/2).

Stopping the water inlet to the valve, the valve piston returns in site due to centrifugal force and closes the valve.

By pumping new water under the bowl bottom it's possible to lift it up and close the sludge discharge holes (Fig. L/1).