Operating Instruction of APDSM1000-1 Disk-Type Separator

User's Manual

Please read the instruction manual before using the separator

This machine can only be operated and maintained by staff who are familiar with the characteristics of the machine and have relevant safety operation knowledge!

The manufacturer is not responsible for reduced reliability and machine damage and personnel injury caused by machine order modification!

Instruction manual NO: A318A.1SM

The total 2 operating instruction manuals of separator:

General Manual: Information for general Introduction;

Service Manual: Information related to specific type of separator.

Content and instructions

1 Technical Data

Water flux	L/h	5000
Residue removing mode		removing residue through small valve
Start-up time of separator	min	≤5
Motor power	kW	7.5
Output pressure of light liquid pump	MPa	0～0. 2
Unit weight	kg	≈598
Overall dimensions (LXWXH)	mm	1052×966×1142

★ This product meets the requirement of GB19814 "Safety Requirement of Separator"

★ The product meets the requirement of JB/T 8103.1"Disk Separator, Part 1: General Technical Conditions"

★ The residue removing interval of time shall not be less than 150s

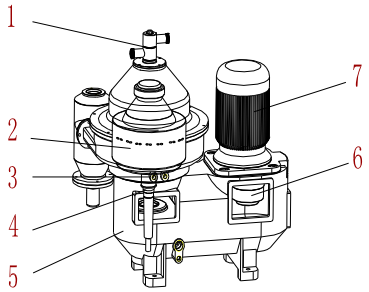
★ The actual processing capacity of the separator may vary depending on different materials and different processes

2 Description of Structure

2.1 Structure of Complete Separator

Structural components of disk-type centrifuge:

1. Charge and discharge device
2. Drum
3. Water Distribution Piping
4. Vertical shafting
5. Rack
6. Coupler
7. Motor



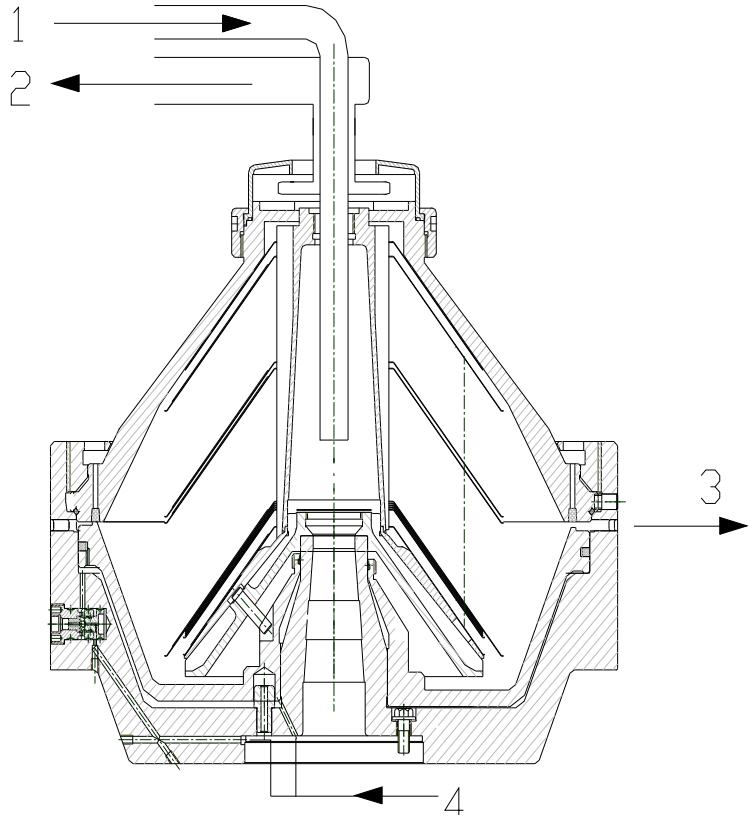
Charge and discharge device: the device provides a channel to charge and discharge materials, including material charge and discharge.

Drum: the main place for the separation of materials.

Water Distribution Piping: provides sealing, opening water entering the channel in the drum body.

The drive shafting transmits the motor power to the drum through the coupling and flat conveyor belt to ensure the formation of centrifugal force field of the drum.

2.2 Structure of Drum



1. Feed inlet
2. Liquid phase
3. Slag
4. Operating water

2.2.1 Structure of Drum

The drum is the most important components of separator, as shown in the figure, the drum body is fixed together with drum cover by main lock ring and equipped with the distributor and the disk plate set. The top of drum cover and centripetal pump cover form the light-phase pump chamber. The drum body is also equipped with piston and small valve structure inside, and the drum and piton bottom form the sealing water chamber.

2.2.2 Function of separation

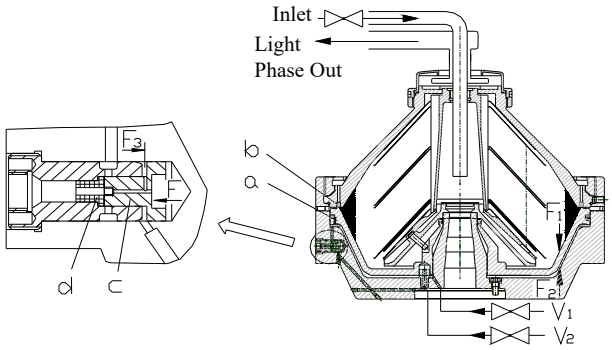
The flow of the liquid in the drum:

Materials enter the distributor from the upper feed inlet and through the feeding tube and are distributed to the discs set for separation, the solid particles move along the disc and towards the drum wall. They are discharged from the sludge port during deslagging. The light liquid phase moves along the disc towards drum center into the light liquid phase pump chamber, and is discharged to the atmosphere through light-liquid phase outlet by the light liquid centripetal pump.

2.2.3 Function of residue removal

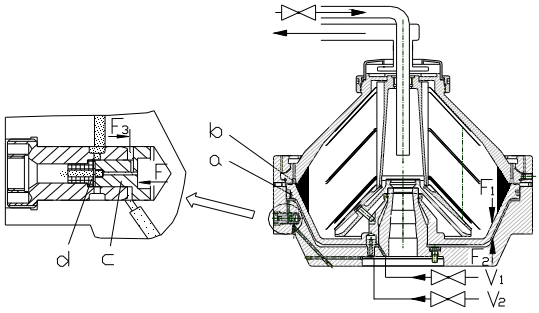
Normal separation:

The valve (1) is opened, the bottom of the piston (a) fill up with water, and due to the effect of centrifugal force, the water at the bottom of the piston produces very high hydraulic pressure F_2 on the piston, which is higher than the hydraulic pressure F_1 produced by the substances in the inner cavity of the drum, the piston thus is driven to push against the seal ring (nylon) (b), and it is ensured that the process of separation is carried out under the conditions in which the inner cavity of the drum is airtight. The valve core (c) ensures that the nylon valve (d) doesn't leak by the centrifugal force F generated by itself. As the feed valve is opened, the separation liquid continuously enters the drum for separating, and thus the solid particles are separated from the separating liquid, and accumulated on the drum wall while the clear liquid phase is discharged from the centripetal pump. And accumulated on the drum wall while the clean liquid phases are discharged by the centripetal pump.



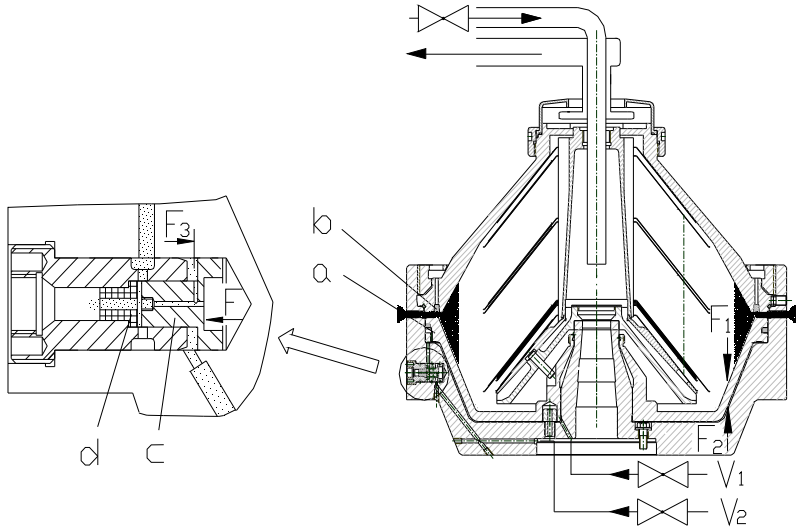
Starting the cycle of residue removal:

When the valve (2) is opened, the cavity between the valve core and the valve body is filled with deslagging water and the generated centrifugal force F_3 exceeds the centrifugal force F of the valve core, and thus the valve core (c) moves inwards and the nylon valve (d) opens to drain the acting water from the piston bottom; the liquid pressure F_2 is gradually reduced, a part of deslagging water is discharged from the drum through the drain hole while the other part is to fill the cavity between the valve core and the valve body.



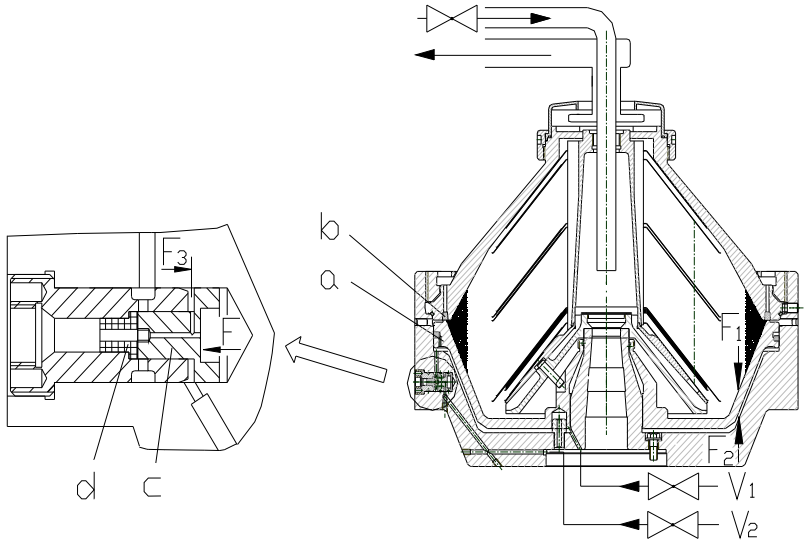
Residue removal:

The action water is drained away gradually from the piston bottom and the hydraulic pressure F_2 is getting lower than F_1 so that the piston moves downward under the action of the hydraulic pressure F_1 and the drum starts slag-discharging. The solid particles are discharged out through the deslagging channel in the drum wall. When the valve (2) is closed, the deslagging water in the cavity between the valve core and the valve body is discharged out gradually through the drain hole, and the centrifugal force is F_3 gradually reduced, thus the centrifugal force F of the valve core is greater than the centrifugal force F_3, so the valve core (c) moves outwards and closes the nylon valve (d). Meanwhile, the operating water gradually fills the piston bottom through the seal water channel, and the hydraulic pressure F_2 gradually increases so that the separation space in the upper part of the piston is closed.



The cycle of residue removal comes to an end (normal separation is resumed):

The hydraulic pressure F_2 exceeds F_1 produced by the material in the inner cavity of the drum so that the piston returns to the closed position and the upper and lower cavities of the piston are filled with liquid; the interface position returns to the normal operating state and the entire deslagging process is completed.



The cycle of residue removal comes to an end (normal separation is resumed):

Refer to the Normal Separation part.

3 Installation

Caution: The separator with drum shall not be transported or hoisted in the installing process; otherwise, it may cause damage to the bearings and vertical shaft. The maximum lifting height is 1250mm and the lifting weight is 500kg.

When installing the separator, a sufficient space (See outline drawing) should be left to facilitate the repair and maintenance of separator. The separator base can be of steel structure or of poured concrete, but both should be solid and firm with smooth surface to minimize the interference from the vibration of other machines.

When fixing the separator onto the foundation in place, the rubber damper pads should be fitted under and above each foot of the separator, and then tighten the nuts.

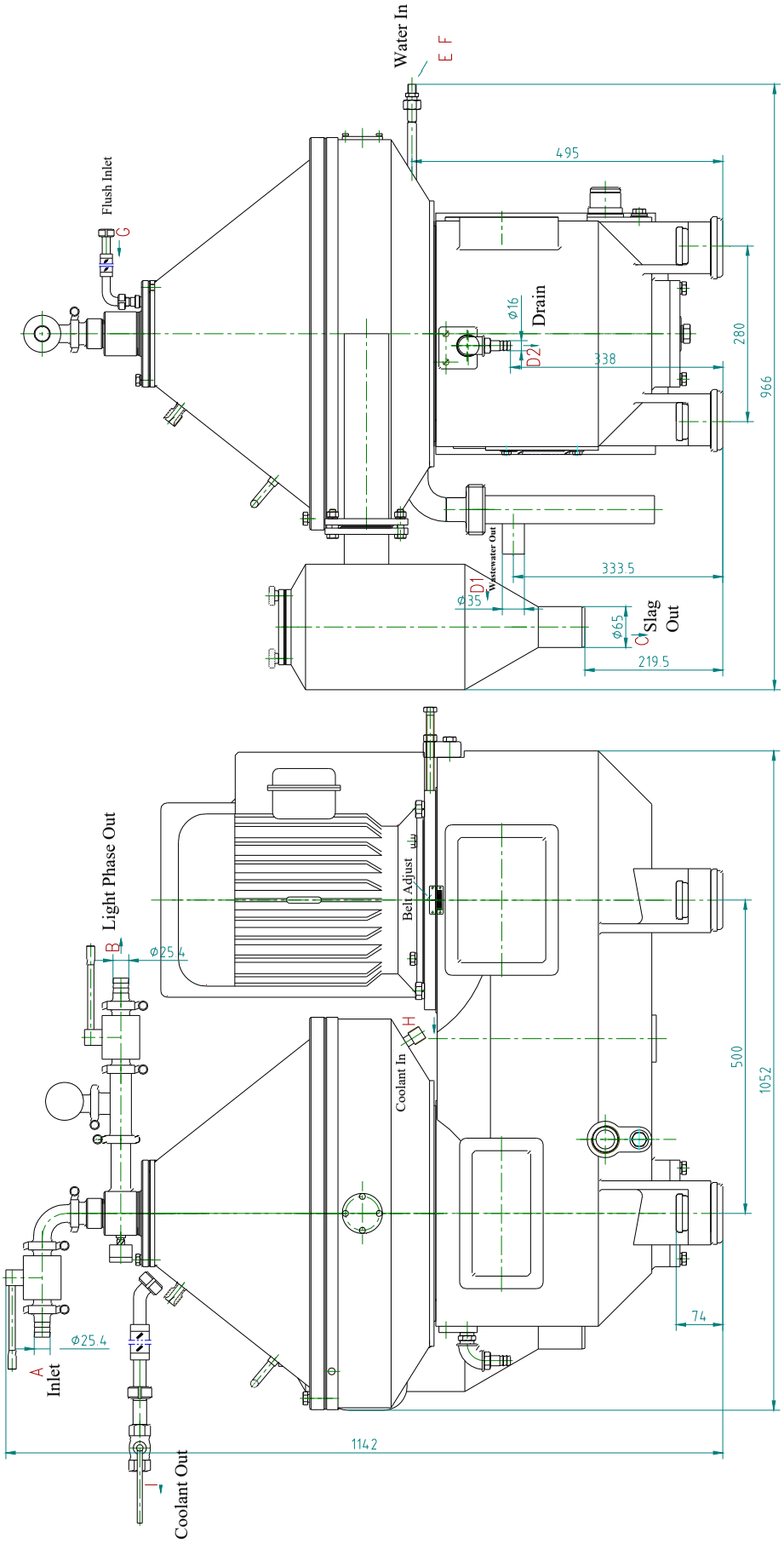
All connections with the separator must be soft connected.

The pressure required by the separator operating water is 0.3-0.5MPa, and the operating water must be connected with hoses to isolate the separator from the vibration of external piping and to be easy to do maintenance work.

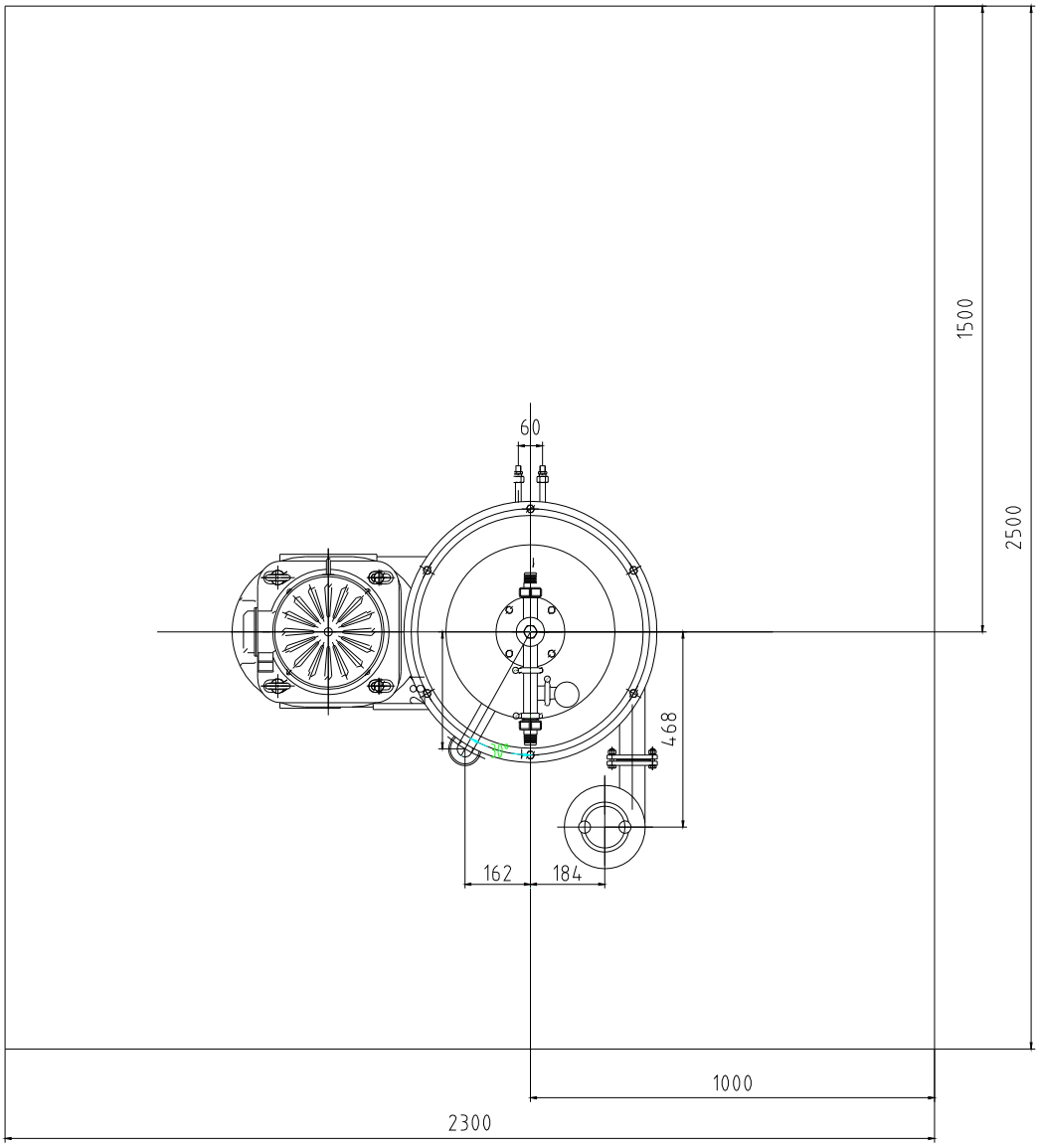
As the separator is installed and fixed, an attention should be paid to the motor for requirement of electric system and the direction of rotation.

The residue outlet piping of the separator should be unblocked, to avoid the residue injected back into the separator due to outlet blocked during residue removing.

3.1 Overall dimensions



主要操作空间 Main Operating Space



3.2 Interface Size

3.2.1 Interface

The letters in the overall dimension diagram are the parts required to be connected externally (A; B; C; D1; D2; E; F; G; H; I).

3.2.2 Description and Size of Interface

A: Material Inlet, where the interface part is a chamfer connector of 25.4mm OD. It is used for access of the external materials.

B: Light-Phase Outlet, where the interface part is a chamfer connector of 25.4mm OD. It is used for output of purified milk separated.

C: Slag Outlet, where the interface part is a chamfer connector of 65 mm OD. It is used for slag discharge, please use hoses to connect to the slag zone.

D1、D2: Sewage outlets, where the interface parts are chamfer connectors of 35mm; 16mm OD used for sewage discharge, please make flexible connection with external piping.

E: Sewage outlets, the connecting parts of which should adopt G1/2 connectors with external threads. They are used for sewage discharge.

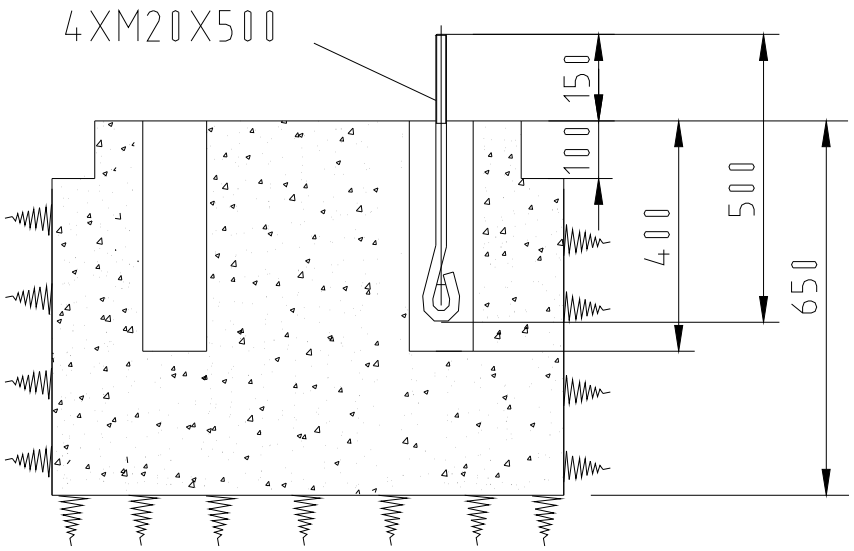
F: Open Water Inlet, the connecting parts of which should adopt G1/2 connectors with external threads. They are used for opening water entering.

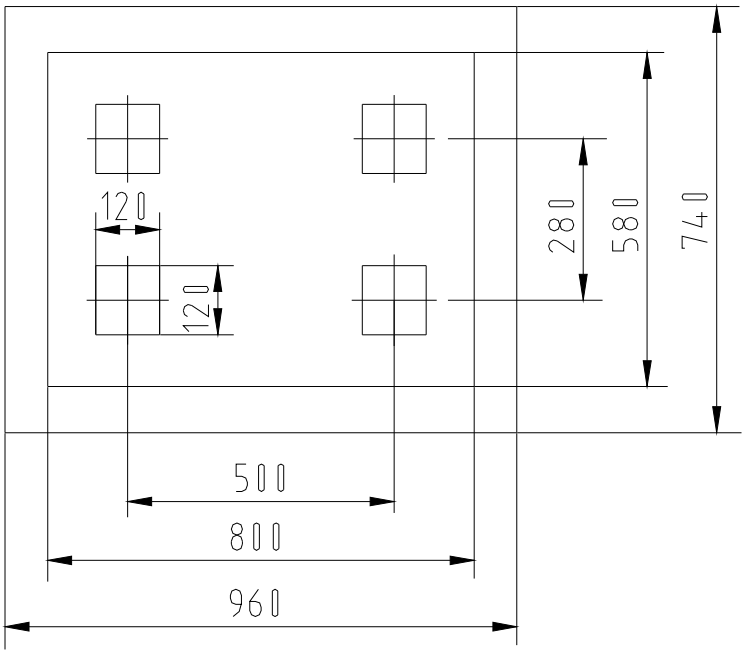
G: Rinse Water Inlet, the connecting parts of which should adopt G1/2 connectors with external threads. They are used for flushing the deslagging passage.

H: Cooling Water Inlet, the connecting parts of which should adopt G1/2 ball valve with external threads. They are used for cooling separator body.

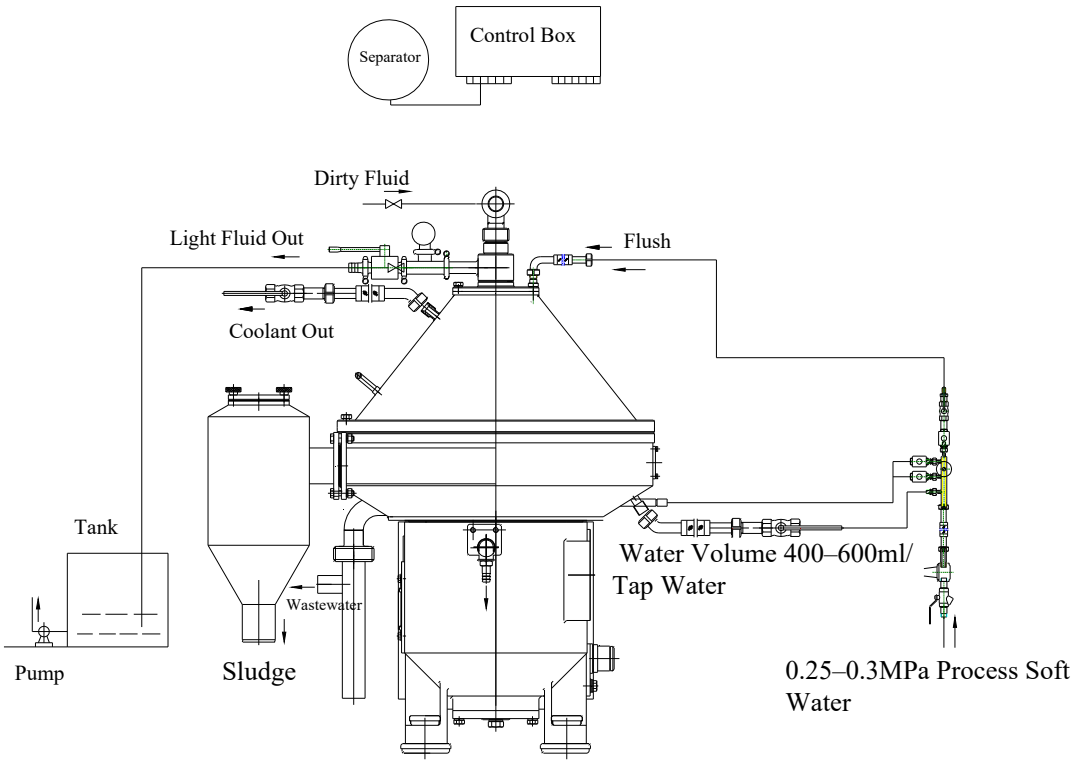
I: Cooling Water Outlet, the connecting parts of which should adopt G1/2 ball valve with external threads. They are used for cooling separator body.

3.3 Basic Installation Dimensional Diagram





3.4 Piping Connection Diagram



Feed pressure should be greater than 0.02 MPa. Use DN25 stainless steel ball valves. Be sure to slightly close the cooling water inlet valve.

4 Operating Instructions (Operating Regulations)

Preparation before Operation

- Check the drum body that should rotate flexibly without jamming.
- Check whether the oil level in the tank is correct.
- Inspection of operating water pressure.
- Check the motor for direction of rotation, especially after the first start or motor equipment repair and maintenance.
- Check that the recycling system is normal.

4.1 Starting

a. Start the separator and, if the separator is found abnormal, stop it immediately to check the drum for normal assembly.

b. Restart the separator as the various components operate properly.

4.2 Separation (Refer to Functions of Structure)

The operating water is introduced into the sealing cavity or opening cavity of the drum by the water distribution system, so that the drum is sealed or opened. This type of introduced water is called as control water (also known as operating water).

a. Open "Seal Valve"

Open the seal valve, so that the bottom of the piston is filled with water, and the water at the bottom of the piston produces huge hydraulic pressure to the piston due to the centrifugal force, which is higher than the hydraulic pressure force produced by the material in the inner cavity of the drum, therefore, the piston is supported against the nylon seal ring to ensure that the separation is conducted in the case that the inner cavity of the drum is sealed. The valve core ensures that the nylon valve is not leaking by the centrifugal force produced by itself to ensure that the nylon valve is not leaking.

b. Open "Feed Valve"

Open the feed valve to inject the separation liquid into the drum from the center hole of the separator, and enters the space outside the disk under the action of the centrifugal force to start separating. The separated clean liquid (light phase) flows along the external surface of the disc towards the center and is discharged from the discharge pipe through the centrifugal pump; the solid impurities are separated from the separation liquid, and flow to and are deposited on the drum wall (Slag Space) ready to be discharged when deslagging.

4.3 Deslagging (Refer to Functions of Structure)

The device uses small valve deslagging structure, as long as the inlet time of the pressure water is controlled, the full or partial discharge can be realized, and if the user is equipped with the electrical control system made of the factory, the automatic full or partial discharge can be realized.

Full Discharge:

The full discharge is to drain completely the sludge and all liquid from the drum body, the operating process is as follows:

Close the feed valve; open the opening valve, if the impulsive noise of deslagging is heard, it indicates that the deslagging has been started, and if the opening water ball valve is always open, the separation residue in the drum can be discharged completely, and then close the opening water ball valve and open the seal water ball valve, so that the drum is kept in sealed state for normal separation.

Partial Discharge:

The partial discharge is to drain only a part of sludge in the drum (including a small amount of the liquid). For this device, the amount of sludge is quantitatively controlled and it is generally unnecessary to stop feeding material in partial discharging.

The opening time of the solenoid is adjusted depending on the operating water pressure and slag amount to be discharged; please note that the stable pressure of operating water is the important condition to ensure the constant amount of each discharge.

4.4 Selection of residue discharge interval

The deslagging interval (i.e. the interval time between every two adjacent deslagging operations) depends on the sludge content of separated liquid and the actual processing amount as well as the amount of sludge discharged in partial deslagging because the volume of sludge cavity in the drum body is constant, therefore, the higher the sludge content of separated liquid, the shorter the interval time between two deslagging operations; Conversely, the lower the sludge content, the longer the interval time between two deslagging operations.

The deslagging time T can be determined referring to the formula below:

$$T = 60L/QC$$

Where: T——Interval time between every two deslagging operations (min):

L——Amount of each discharge (determined according to the production and process necessity generally8 -- 9L; (For reference only)

Q——Actual processing amount of separator (L/h)

C——Sludge content of separated liquid (Note: This is the volume ratio, such as sludge content that is 0.1%, then C=0.001)

However, no matter how much the sludge content of separated liquid is, the deslagging interval shall not be less than 3 minutes minimum and shall not exceed 4 hours maximum.

4.5 Close Down

a. Close the "Feed Valve" to stop feeding.

b. Close the "Seal Valve".

c. Open the "Opening Valve" to move the piston downwards and open the deslagging outlet, so as to discharge completely the sludge and part of material in the drum (close the "Opening Valve" immediately after deslagging in manual operation; the material in the drum can be fully discharged only by repeating deslagging for 3 – 4 times).

d. Open the "Feed Valve" to clean the drum and disk with rinse water. Repeat steps a - c for 2-3 times.

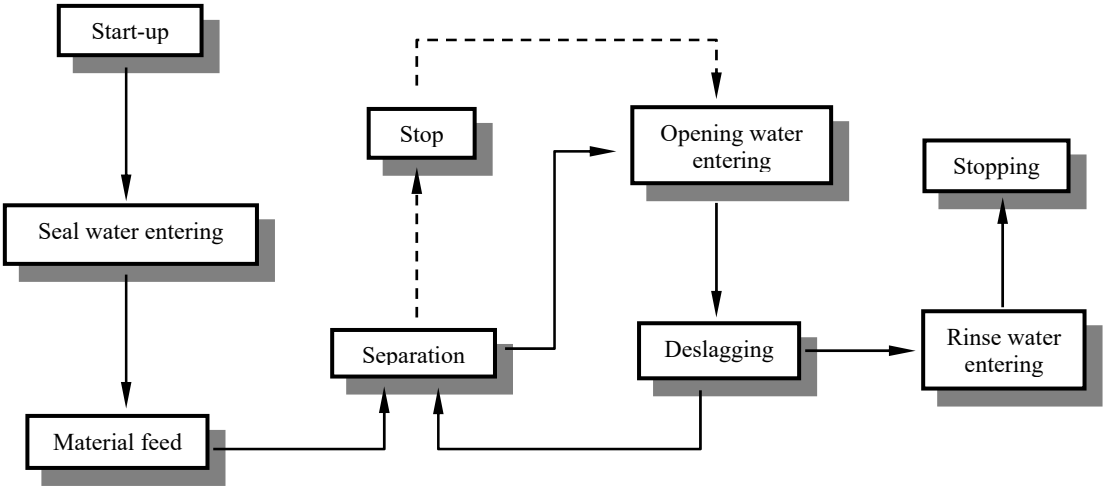
e. Close the "Feed Valve" stop water;

f. Close the "Outlet Valve";

g. Power Cutoff.

Caution: Don't unscrew any fastener from the separator until the drum is completely stopped.

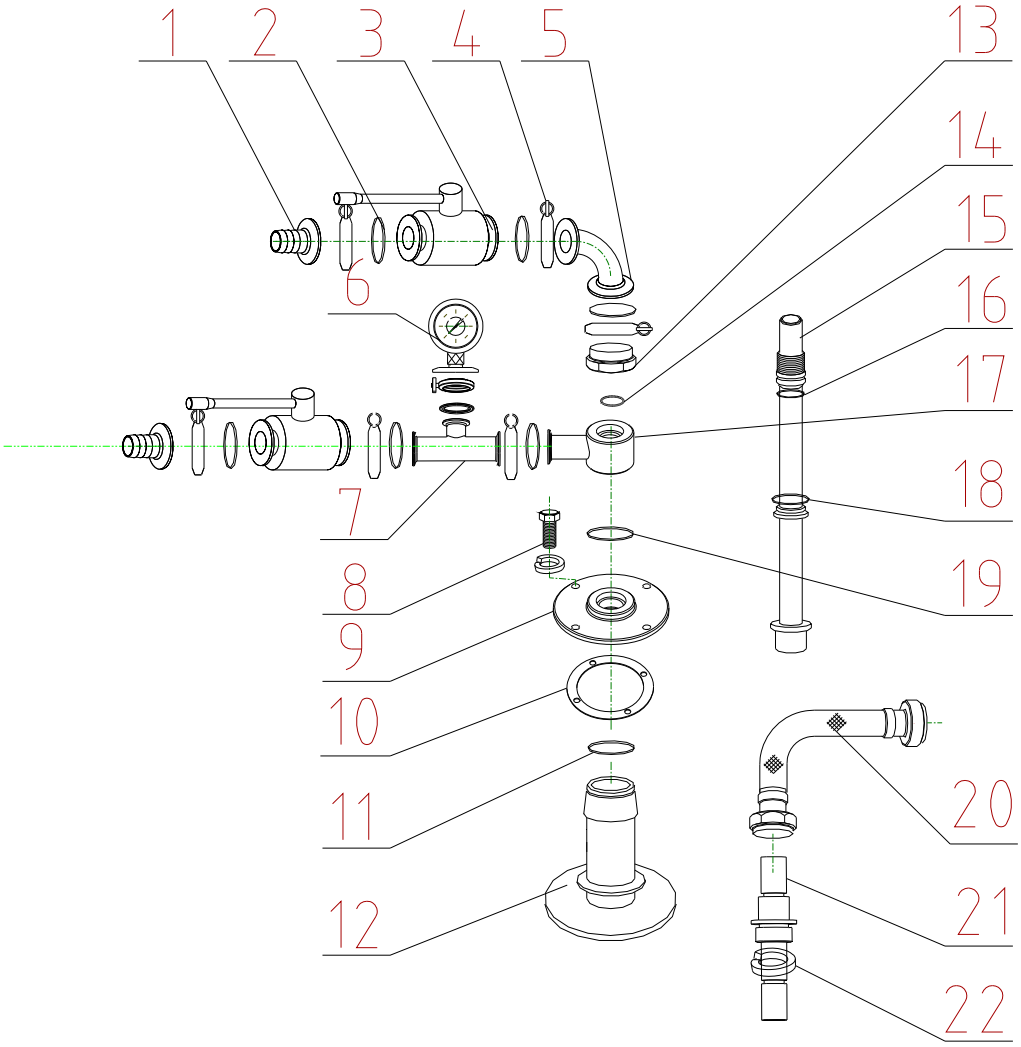
Operating procedure of separator:



Note: The dotted procedure shall be implemented before stopping.

5 Schematic Assembly Diagram

5.1 Charge and discharge device



S/N	Code	Name	Quantity
1	553400100000	Connector	2
2	461Z02500001	Sealing Ring	7
3	520602500010	Globe valve	2
4	8403Z0078700	Clamp	7
5	561200000154	Elbow	1
6	530322111100	pressure gauge	1
7	561002500008	Clamp-type three-way	1
8	7514100030A0	Bolt	4
9	20150270	Connector Seat	1
10	21050219	Adjusting washer	3
11	4613037026G0	O-Sealing Ring	
12	11010250	Centripetal pump	1
13	21320214	Nut	1
14	21020198	Gasket	1
15	22320273	Feed tube	1
16	4613026026G0	O-Sealing Ring	1
17	11090244	Light liquid connector	1
18	4613028026G1	O-Sealing Ring	1
19	4613050035G2	O-Sealing Ring	1
20	554200800100	Metal hose	1
21	21410100	Connector	1
22	7551100000J0	Spring washer	5

Removal and installation of material feeder and discharger unit:

1. Fix the feed tube No.15 with the disassembly tool 11032167, loosen the nut No.13 with the hook wrench and take out.

2. And then remove the light liquid connector No. 17 , loosen the cover nut and remove the cover.

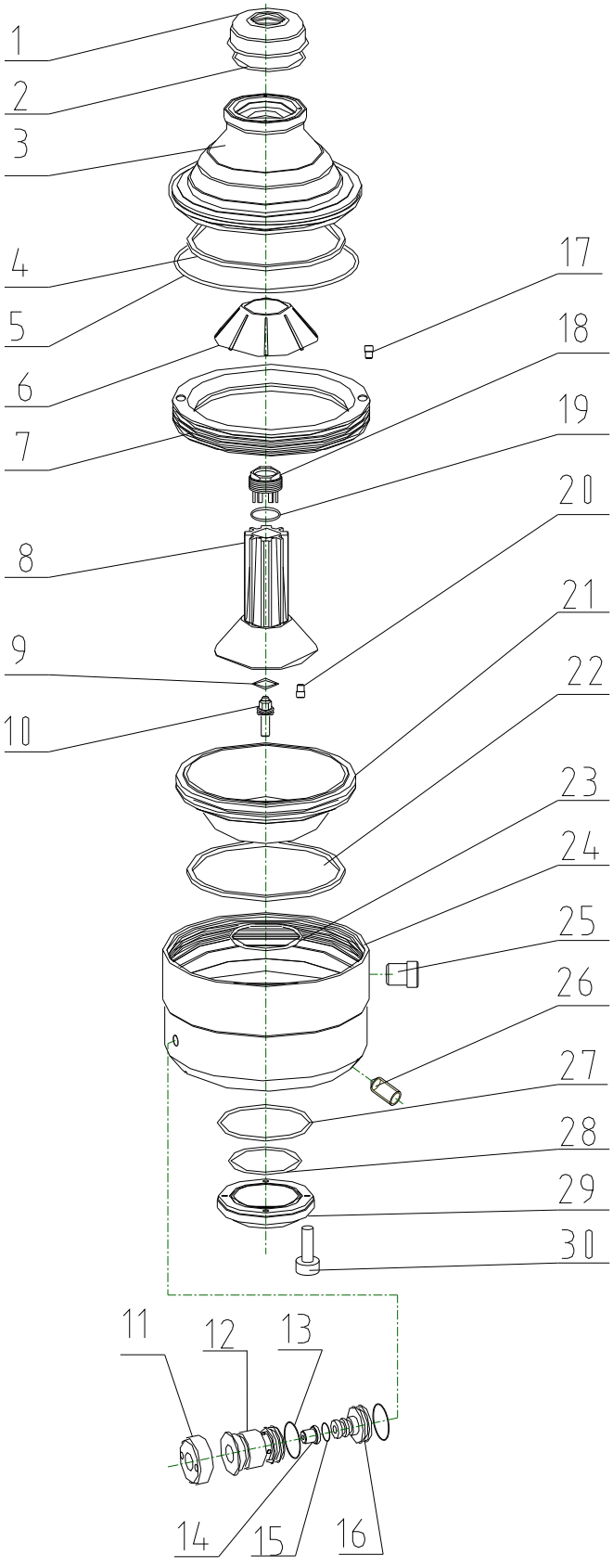
3. Loosen the Small lock nut of drum part No.1 with the small lock ring wrench 11032080, take out the Centripetal pump No.12.

4. Loosen the screw plug of distributor No.30 of drum part with the screw plug dismantling tool 11032164, and then take out the feed tube No.15.

5. Put the parts removed on a clean rubber mat, fiberboard or proper pad in order.

6. Install in the inverse order as in removal, before installation , parts shall be wiped clean and the sealing ring should be checked if it is in good condition. If it is damaged, it shall be replaced in time.

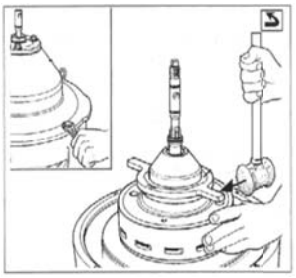
5.2 Drum Device



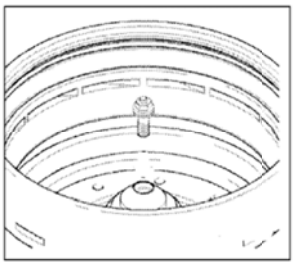
S/N	Code	Name	Quantity
1	26240036	Small lock nut	1
2	4613118035G1	O-Sealing Ring	1
3	26160229	Drum cover	1
4	21060139	Seal Ring	1
5	21060171	Seal Ring	1
6	11018192	Disc	1 Set
7	26260066	Main lock ring	1
8	11014412	Distributor	1
9	4613025026G1	O-Sealing Ring	1
10	21420190	Vertical shaft nut	1
11	20010033	Screw plug	2
12	22010064	Valve seat	2
13	21010160	O-Sealing Ring	4
14	20000020	Seal seat	2
15	21000106	O-Sealing Ring	4
16	22810012	Valve core	2
17	20000043	Screw plug	4
18	21320185	Screw plug of distributor	1
19	4613053026G0	O-Sealing Ring	1
20	22000400	Connector	2
21	26760085	Piston	1
22	21060140	Seal Ring	1
23	4613077035G0	O-Sealing Ring	1
24	26060062	Drum body	1
25	22000399	Pin	1
26	754508001090	Screw	4
27	4613140026G0	O-Sealing Ring	1
28	4613112026G0	O-Sealing Ring	1
29	21150128	Water distribution ring	1
30	7544080020A0	Screw	4

Removal and installation of drum:

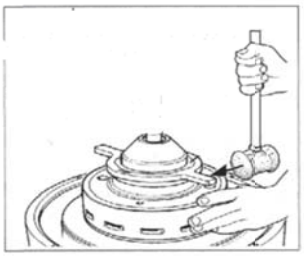
1. Use the small locking ring spanner to remove the small lock nut (left hand threaded) No. 1, and then remove the centripetal pump No. 10 from the charge and discharge devices.



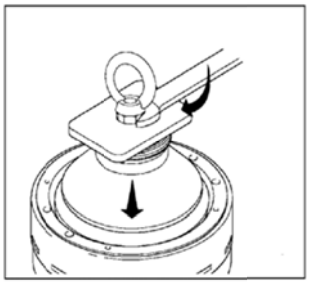
2. Use the screw plug dismantling tool to loosen screw plug of distributor No.18 (left hand threaded), and then remove the feed tube No.13 from the charge and discharge devices.



3. Use the socket wrench loosen the vertical shaft nut No. 10 (left hand threaded), and take it out.

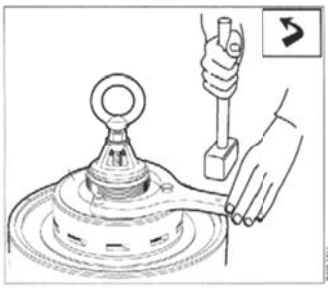


4. Use the small locking ring spanner install and tighten the small lock nut No.1.



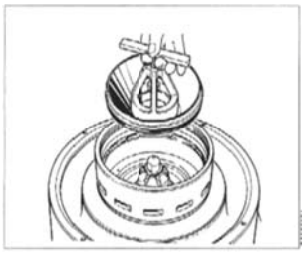
5. Use the drum body puller to separate drum part from the vertical shaft cone surface, and then lift the whole drum part.

6. Put the drum part on a clean rubber mat, fiberboard or proper pad. Using disc clamping tool press the disc group, then using the round copper rod rap the main locking ring spanner, remove the main lock ring No.7 (left hand threaded); Remove the disc pressing tool, use the small locking ring spanner to lift the small lock nut No.1 and the drum cover No.3, and then use the distributor puller lift the distributor No.8 and the disc group No.6.

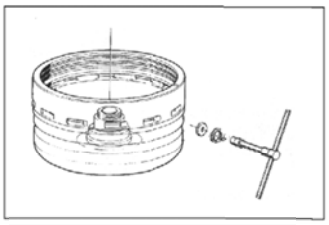


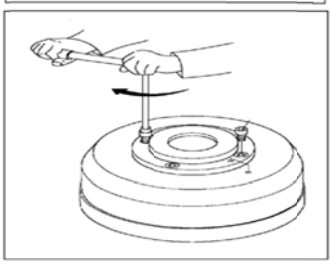
7. Use the piston puller to lift the piston No.21.

8. Use the drum body puller to lift the drum body No. 24. Use the valve seat dismantling tool to unscrew the plug, use the valve seat puller to pull the valve seat out, and use the valve core puller to pull the valve core out.



9. Use the inner hexagon spanner S=6 to remove the water distribution ring No. 29.



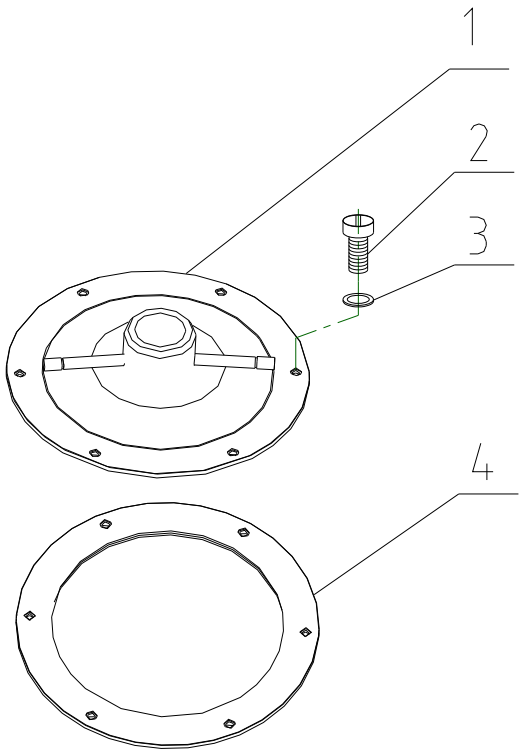


10. Put the parts removed on a clean rubber mat, fiberboard or proper pad in order.

11. Install in the inverse order as in removal, and wipe the parts clean before installation.

Note: When assembling the water distribution ring No. 29 and the drum body No. 24, make sure that the hole 2X⊄5 is aligned before tightening the screw M8.

5.3 Water Distribution Piping



S/N	Code	Name	Quantity
1	11003038	Water Distribution Piping	1
2	7541080016A0	Screw	6
3	7551080000K0	Washer	6
4	21060134	Gasket	1

Removal and installation of water distribution unit:

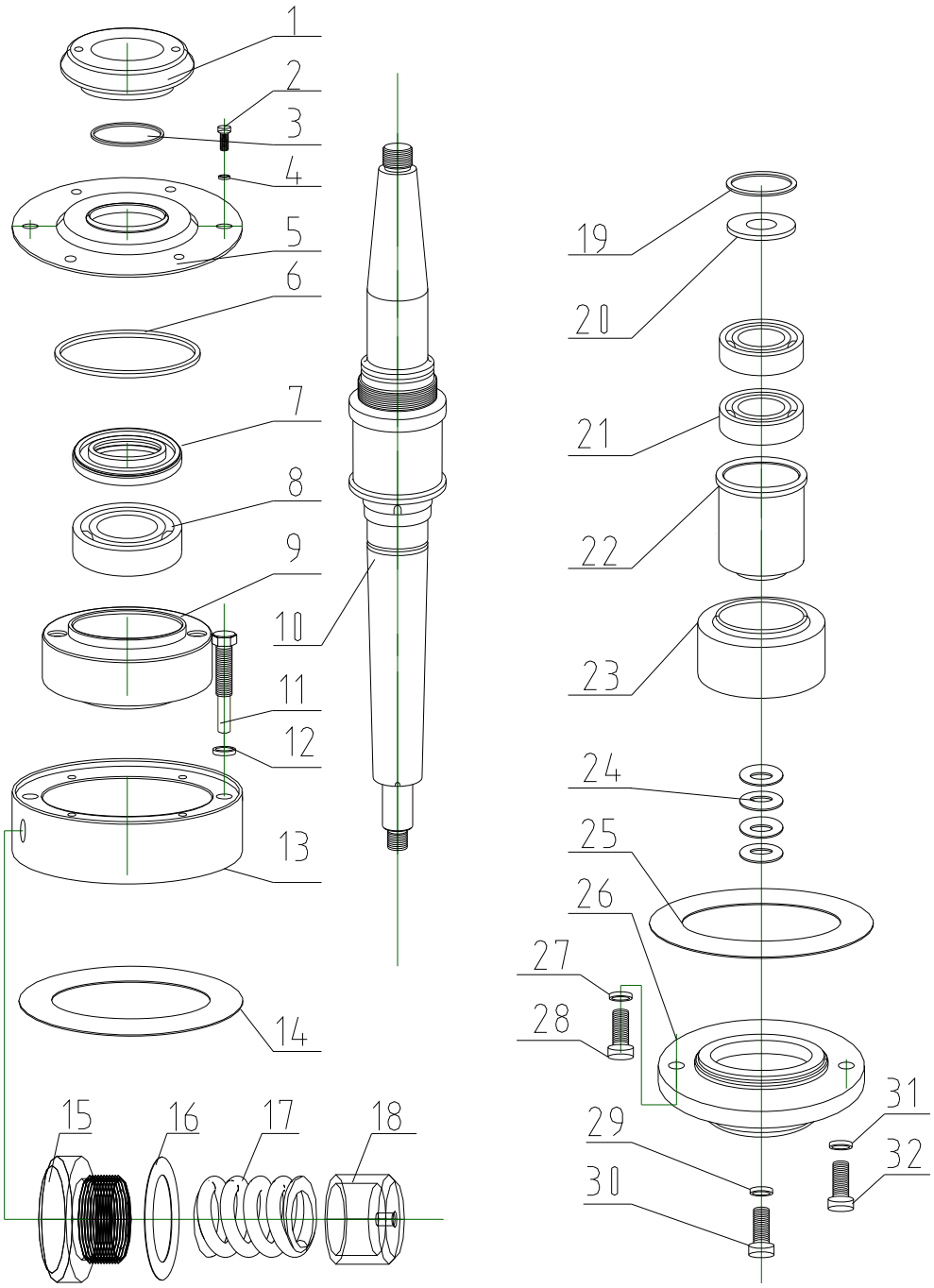
Remove the fastening screws of water distribution system (M8).

Remove the operating water feed tube from the machine body.

Remove the water distribution unit.

Install in the inverse order as in removal, and wipe the parts clean before installation.

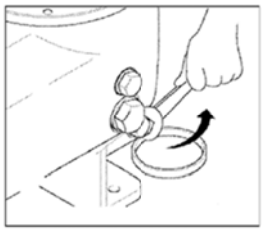
5.4 Vertical shafting



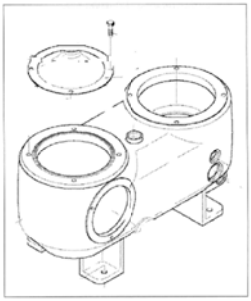
S/N	Code	Name	Quantity
1	23040079	Clamping cap	1
2	7541060010A0	Screw	6
3	4613054026G0	O-Sealing Ring	1
4	7551060000J0	Washer	6
5	20040064	Labyrinth cover	1
6	4613118026G1	O-Sealing Ring	1
7	20530030	Upper retainer	1
8	542602100003	Bearing	1
9	20340111	Bearing seat	1
10	22230134	Vertical shaft	1
11	7514120070A1	Bolt	6
12	7551120000K0	Washer	6
13	26650031	Buffer block	1
14	21050166	Gasket	1
15	21320096	Nut	6
16	21010117	Gasket	1
17	21810049	Spring	6
18	20310002	Supporting sleeve	6
19	7568050000J0	Retainer	1
20	21430116	Lower retainer	1
21	542703060001	Bearing	2
22	20330031	Bearing sleeve	1
23	542032100000	Bearing	1
24	560200035500	Butterfly spring	4
25	4613140035G1	O-Sealing Ring	1
26	20150135	Bottom cover	1
27	7551120000J0	Washer	6
28	751412003060	Bolt	6
29	21040117	Gasket	1
30	22000351	Bolt	1
31	21000086	Gasket	2
32	7514080012A0	Bolt	2

Removal and installation of vertical shafting:

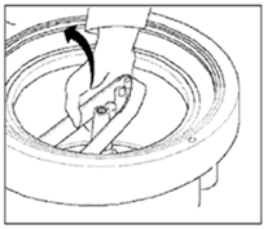
1. Drain all oil from the oil tank.



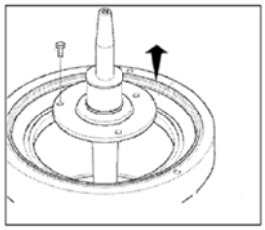
2. Use the compression cover wrench to remove the compression cover No. 1 (left hand threaded), use the socket wrench to remove the screws No. 13 from the frame device, and then remove the shielding can No.16 from the rack device.



3. Use the socket wrench to remove the bolt No. 38 from the rack device, and use the motor pad puller to move the motor pad No. 37 from the rack device in the direction to loosen the belt and to remove the flat conveyor belt No. 1 from the coupling.



4. Use the socket wrench to loosen the bolt No. 11 and use the vertical shaft spreader to lift the vertical shaft parts out.

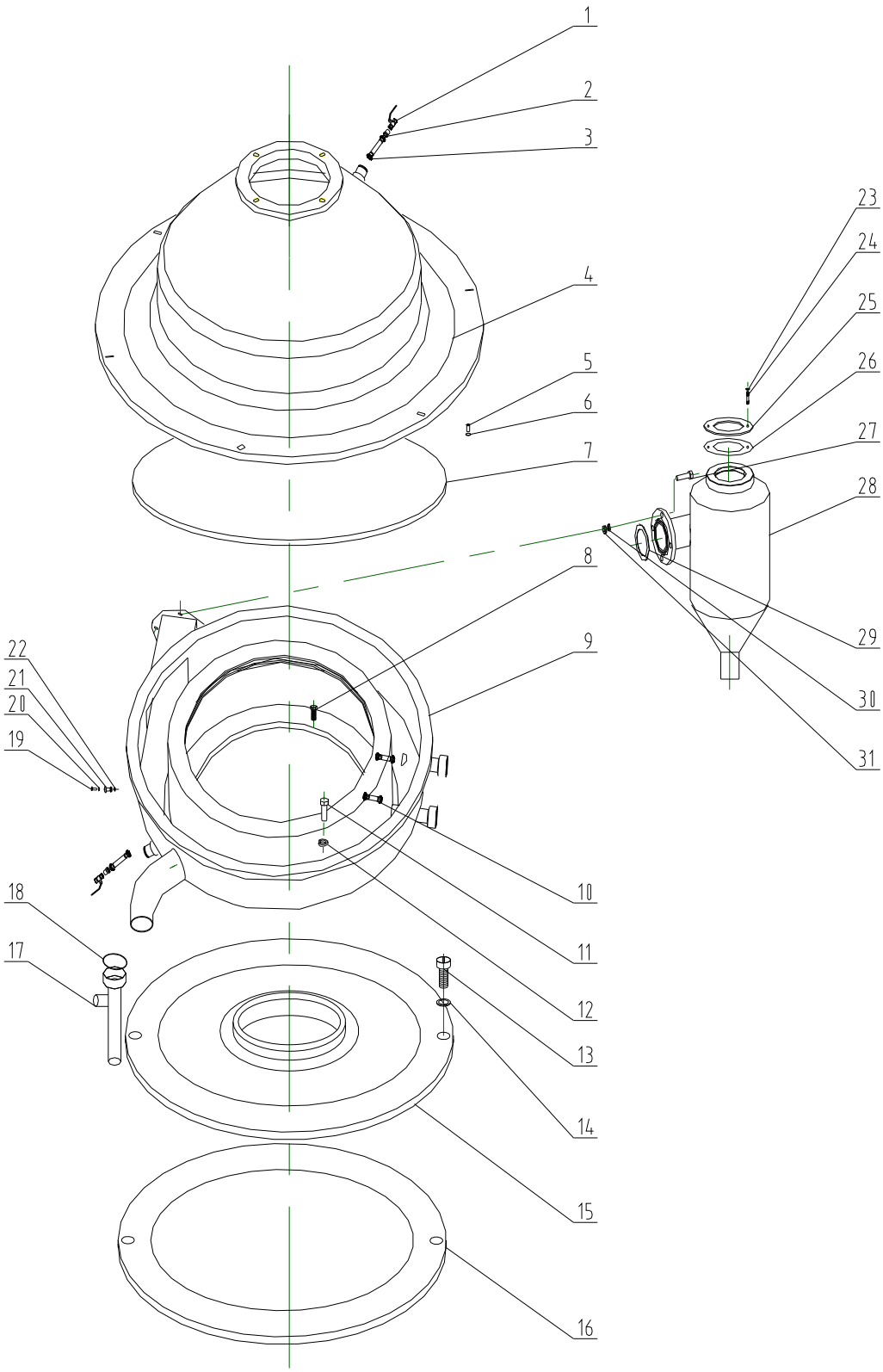


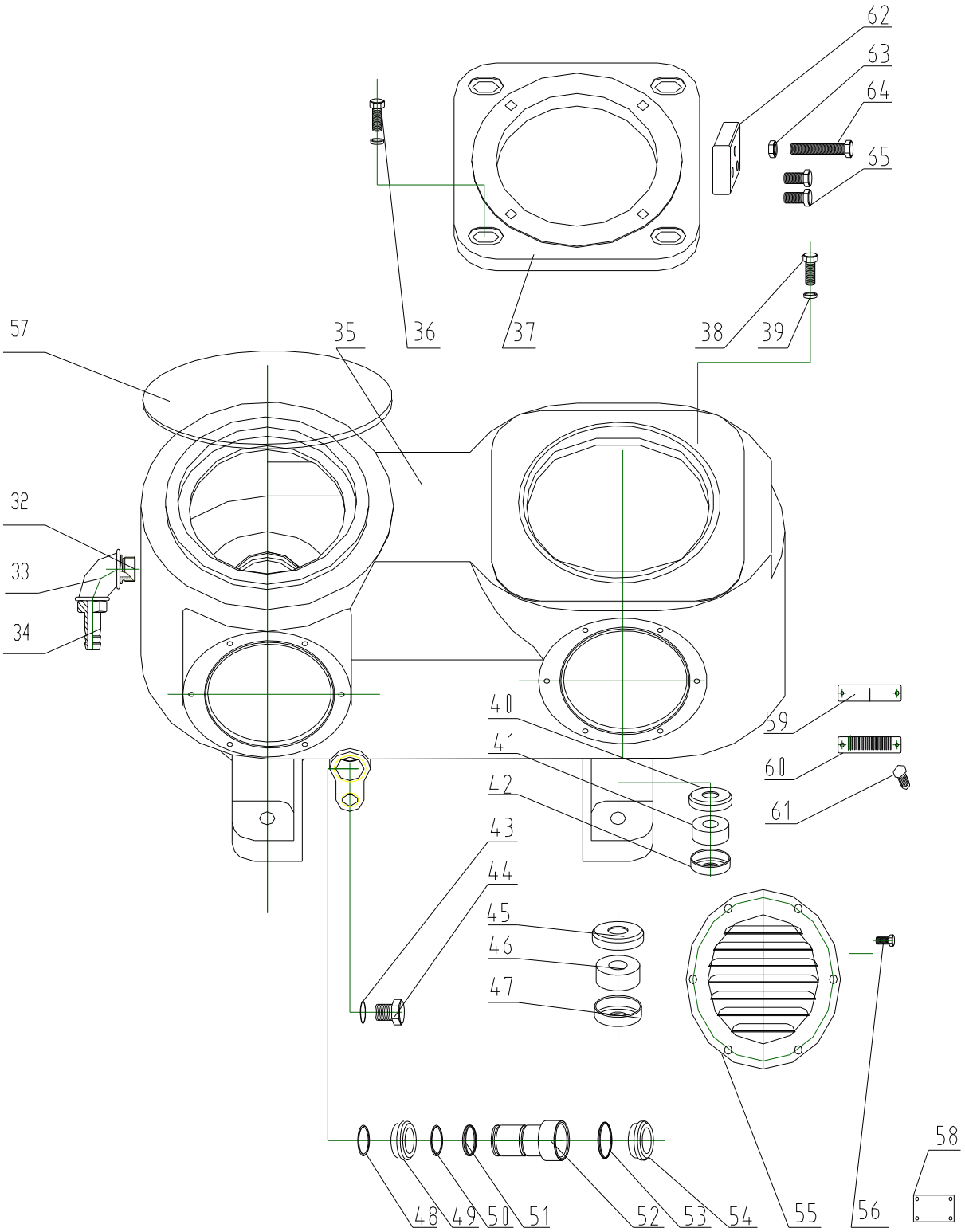
5. Use a double-end wrench to loosen the nut No. 15, and use a socket wrench to remove the screw No. 2 to disengage the vertical shaft parts from the buffer seat. Use a pin to remove the bearing sleeve No. 22, and then use a puller to remove the bearing sleeve to take the spacer No. 20 down. Use the curved-nose retainer ring pliers for hole to remove the retainer ring No. 19, and then take the bearing down followed by removing the spacer No. 7, labyrinth cover No. 5 in order.

6. Put the parts removed on a clean rubber mat, fiberboard or proper pad in order.

7. Install in the inverse order as in removal, and wipe the parts clean before installation.

5.5 Rack Unit


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

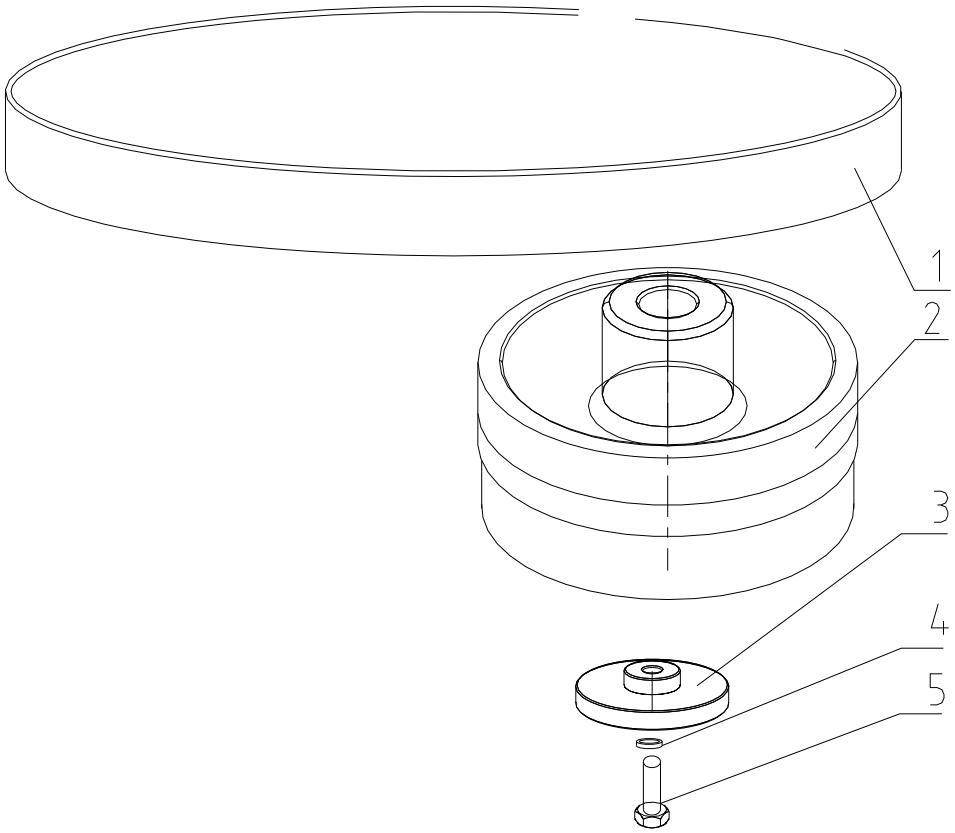

62
63
64
65
57
35
36
37
38
39
32
33
34
40
41
42
43
44
45
46
47
59
60
61
48
49
50
51
52
53
54
55
56
58

S/N	Code	Name	Quantity
1	520601516000	Ball valve	2
2	22310112	Adapter	2
3	554201230000	Metal hose	2
4	11026316	Separator cover	1
5	22000277	Pin	1
6	4613011027G0	O-Sealing Ring	1
7	21070040	Seal Ring	1
8	7514100025A0	Bolt	6
9	11026311	Separator body	1
10	554200000051	Metal hose	2
11	7514120045A0	Bolt	6
12	7551120000K0	Washer	12
13	7541060014A0	Screw	6
14	7551060000K0	Washer	6
15	21060135	Gasket	1
16	20060018	Shielding can	1
17	4613043035G1	O-Sealing Ring	1
18	11091178	Blow-off pipe	1
19	7541050016A0	Screw	4
20	7551050000K0	Washer	4
21	11090050	Valvelet disassembling seal plate	1
22	4613036035G1	O-Sealing Ring	2
23	21310077	Pattern nut	2
24	22400175	Stud	2
25	21040004	Gasket	1
26	20340133	Cyclone cover	1
27	7514100040A0	Bolt	4
28	11093122	Cyclone	1
29	27440015	Gasket	1
30	7551100000K1	Spring washer	4

S/N	Code	Name	Quantity
31	7531100000K0	Nut	4
32	553400000654	Inner joint	1
33	561201500004	Elbow	1
34	22320125	Connector	1
35	29570030	Stand	1
36	7514120030A0	Bolt	6
37	27350106	Motor pad	1
38	7512160045A0	Bolt	4
39	7551160000J0	Washer	4
40	23030001	Upper shock-absorber cover	4
41	20020001	Upper rubber cushion	4
42	23030002	Upper shock-absorber seat	4
43	599000001207	Screw plug seal washer	1
44	75Z124000400	Drain plug	2
45	23040001	Lower shock-absorber cover	4
46	20030001	Lower rubber cushion	4
47	23040002	Lover shock-absorber seat	4
48	599000001213	Screw plug seal washer	1
49	21420062	Oil atomizer nozzle	1
50	21910003	Spacing ring	1
51	4613033027G1	O-Sealing Ring	2
52	22330060	Inlet pipe	1
53	4613041018G1	O-Sealing Ring	1
54	560Z00000121	Oil scale	1
55	27340175	Ventilation door plate	3
56	7514100016A0	Screw	18
57	21060250	Sealing Ring	1
58	27430042	Nameplate	1
59	27410021	Nameplate	1
60	27420007	Nameplate	1

61	7582020005M0	Rivet	8
62	27930048	Motor pad puller	1
63	7531120000K0	Nut	1
64	751412015060	Screw	1
65	7514120040A0	Screw	2

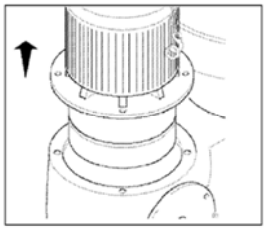
5.6 Shaft Coupling



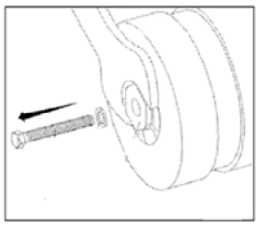
S/N	Code	Name	Quantity
1	27970019	Flat conveyor belt	1
2	20650062	Large pulley	1
3	21140106	Cover-plate	1
4	7551120000J0	Washer GB/T93 12	1
5	7514120060A0	Bolt GB/T5783 M12X60	1

Removal and installation of coupling

1. Loosen the bolt from the motor flange to remove the motor and coupling together.



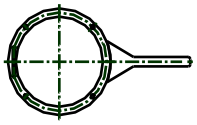
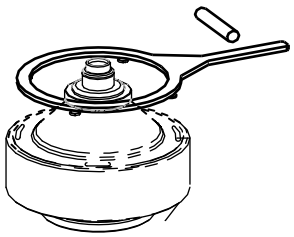
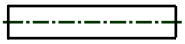
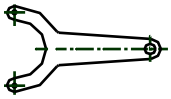
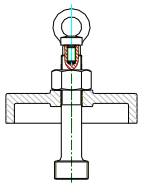
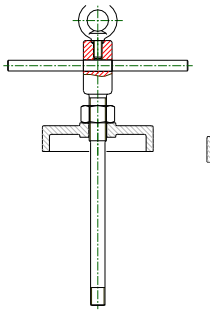
2. Remove the bolt and retainer ring No. 3 and No. 5 from the coupling hole. Use the pulley puller to separate the coupling from the motor.

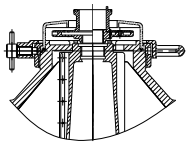
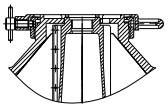
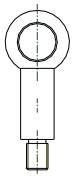
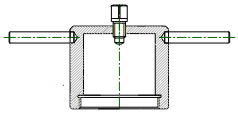
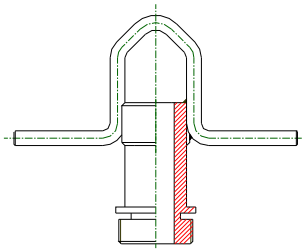
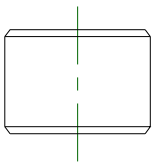


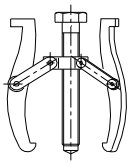
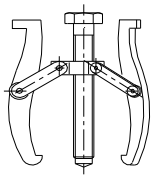
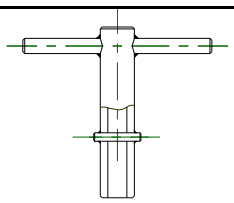
3. Put the parts removed on a clean rubber mat, fiberboard or proper pad in order.

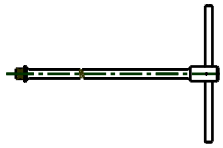
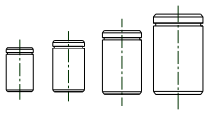
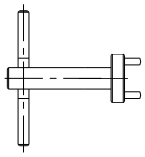
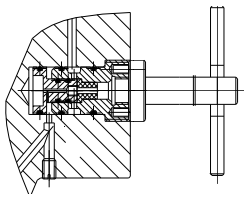
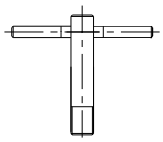
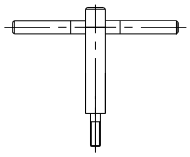
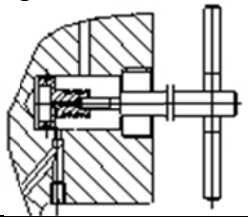
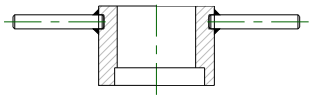
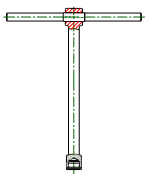
4. Install in the inverse order as in removal, and wipe the parts clean before installation.

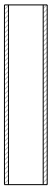
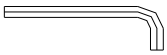
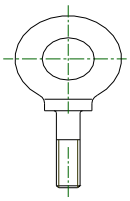
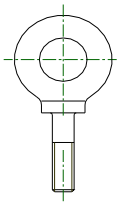
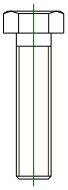
6 Schematic Diagram for Use of Tools

Name and Graphics	Quantity	Application
 Main lock ring spanner 11032107	1	Use a round copper bar to hit the main lock-ring wrench to remove the main lock-ring, and the "O" marks should be aligned when locking the main lock-ring. 
 Round copper bar 92120001	1	
 Compression cover wrench 11032117	1	Used for dismantling the clamping cap from the vertical shafting.
 Disc clamping tool 11033423	1	Used for pressing the discs and lifting the disc set and separator
 Drum body puller 11033419	1	Used for dismantling the drum body

Name and Graphics	Quantity	Application
 Small lock ring wrench 11032080	1	Used for dismantling the centripetal pump, and lifting the drum cover  
 Vertical shaft spreader 22420054	1	Used for lifting the vertical shaft
 Piston Puller 11033215	1	Used for removing the piston from the drum
 Distributor puller 11033418	1	Used for lifting the distributor
 Heel block 20010086	1	Used for removing the piston of drum

Name and Graphics	Quantity	Application
 Puller LT-A-150	1	Used for removing the vertical shaft bearing
 Puller LT-A-200	1	Used for removing the vertical shaft bearing
 Single-ended wrench 24960002	1	Used for dismantling the big nut of buffer
 Hook Spanner 45～52	1	Used for dismantling the nut of separation liquid connector
 Dismantling tool 11032167	1	Used for dismantling the nut of charge and discharge device

Name and Graphics	Quantity	Application
 Square head handle 11032003	One for each	The square head handle is used in conjunction with the sockets for dismantling the nuts and bolts M8, M10, M12, M16 and other types.
 Sleeve S=13 S=16 S=18 S=24		
 Valve seat dismantling tool 11032067	1	Used for dismantling Screw plug 
 Valve seat puller 11032068	1	Used for dismantling the valve seat
 Valve core puller 11033084	1	Used for dismantling the valve core 
 Screw plug dismantling tool 11032164	1	Used for dismantling the screw plug of distributor
 Vertical shaft nut spanner 11032115	1	Used for dismantling the vertical shaft nut

Name and Graphics	Quantity	Application
 Bearing installation tool 21260029	1	Used for installing bearing
 Inner hexagon spanner S=6	1	Used for dismantling the socket-cap screw at the bottom of drum
 Screw Ring 754Z12005OZ0	2	Used for hoisting the machine as a whole
 Screw Ring 754T02005OZ0	2	Used for lifting the cover
 Bolt 751408007060	2	Used for dismantling water distribution ring

7 Lubrication

The lubrication is an important part to ensure the normal operation of the machine. The improper brand of lubricating oil, excessive or inadequate oil quantity, as well as changes in oil quality will lead to deterioration of lubrication conditions and cause serious consequences. The users should pay special attention to these points in application.

It is used to lubricate the bearings in the vertical shafting in normal operation of the separator. The first replacement of oil should be done after the first 250 hours the oil separator operated, and the second replacement should be done after another 250 hours. The subsequent interval of time for replacement of oil depends on the quality of the lubricating oil, but the longest interval should not exceed 2500 hours, and the inner wall and bottom of the oil tank should be carefully cleaned.

The oil should be kept in the mark line limits with oil about 8L.

When reinstalling the removed drum, the following areas should be applied with oil or grease:

(1) Apply grease at the threads of main lock ring and drum body;

(2) Apply grease on the mating surface between lock ring and drum cover;

(3) Apply grease to both shafts of coupling;

(4) Apply oil on the mating surface between separator and drum body.

Recommended lubricating oil

Manufacturer	Model
Great Wall	Dewei AP-100
Mobil	SHC627
Shell	MorlinaS2B 100

The lubricant parameters: The kinematic viscosity is about 100cst at 40℃.

8 Recommend spare parts purchase list

8.1 Purchase spare parts list for half a year

NO.	Code	Name	Quty.	Used part
1	461Z02500001	Clamp ring	7	Charge and discharge device
2	4613026026G0	O- ring	2	
3	4613028026G1	O- ring	2	
4	4613037026G0	O- ring	2	
5	4613050035G2	O- ring	2	
6	21020198	Gasket	2	
7	21060139	Seal ring	1	Drum device
8	21060140	Seal ring	1	
9	20000020	Seal seat	2	
10	21000106	O- ring	8	
11	21010160	O- ring	12	
12	4613053026G0	O- ring	1	
13	4613077035G0	O- ring	1	
14	4613140026G0	O- ring	1	
15	4613118035G1	O- ring	1	
16	4613112026G0	O- ring	1	
17	4613025026G1	O- ring	1	
18	21060171	Seal ring	1	
19	4613054026G0	O- ring	1	Vertical shaft part

8.2 Purchase spare parts list for a year

NO.	Code	Name	Quty.	Used part
1	461Z02500001	Clamp ring	14	Charge and discharge device
2	4613026026G0	O- ring	4	
3	4613028026G1	O- ring	4	
4	4613037026G0	O- ring	4	
5	4613050035G2	O- ring	4	
6	21020198	Gasket	4	
7	21060139	Seal ring	2	Drum device
8	21060140	Seal ring	2	
9	20000020	Seal seat	4	
10	21000106	O- ring	16	
11	21010160	O- ring	24	
12	4613053026G0	O- ring	2	
13	4613077035G0	O- ring	2	
14	4613140026G0	O- ring	2	
15	4613118035G1	O- ring	2	
16	4613112026G0	O- ring	2	
17	4613025026G1	O- ring	2	
18	21060171	Seal ring	2	
19	27970019	Flat conveyor belt	1	
20	21060134	Gasket	1	General drawing
21	542602100003	Bearing	1	Vertical shaft part
22	542703060001	Bearing	2	
23	542032100000	Bearing	1	
24	21050166	Gasket	1	
25	21010117	Gasket	1	
26	21000086	Gasket	2	
27	21040117	Adjusting washer	6	
28	21810049	Spring	6	
29	4613054026G0	O- ring	2	
30	4613140035G1	O- ring	1	
31	4613118026G1	O- ring	1	
32	21070040	Seal ring	1	Rack part
33	21060135	Gasket	1	
34	21040004	Gasket	1	
35	27440015	Gasket	1	
36	20020001	Upper rubber cushion	4	
37	20030001	Lower rubber cushion	4	
38	599000001207	Screw plug seal washer	1	
39	599000001213	Screw plug seal washer	1	
40	4613033027G1	O- ring	2	
41	4613043035G1	O- ring	1	
42	4613011027G0	O- ring	1	
43	4613041018G1	O- ring	1	
44	21060250	O- ring	1	
45	4613036035G1	O- ring	2	

8.3 Purchase spare parts list for two year

NO.	Code	Name	Quty.	Used part
1	461Z02500001	Clamp ring	14	Charge and discharge device
2	4613026026G0	O- ring	4	
3	4613028026G1	O- ring	4	
4	4613037026G0	O- ring	4	
5	4613050035G2	O- ring	4	
6	21020198	Gasket	4	
7	21060139	Seal ring	2	Drum part
8	21060140	Seal ring	2	
9	20000020	Seal seat	4	
10	21000106	O- ring	16	
11	21010160	O- ring	24	
12	4613053026G0	O- ring	2	
13	4613077035G0	O- ring	2	
14	4613140026G0	O- ring	2	
15	4613118035G1	O- ring	2	
16	4613112026G0	O- ring	2	
17	4613025026G1	O- ring	2	
18	21060171	Seal ring	2	
19	27970019	Flat conveyor belt	2	Shaft Coupling
20	21060134	Gasket	1	General drawing
21	542602100003	Bearing	1	Vertical shaft part
22	542703060001	Bearing	2	
23	542032100000	Bearing	1	
24	21050166	Gasket	1	
25	21010117	Gasket	1	
26	21000086	Gasket	2	
27	21040117	Adjusting washer	6	
28	21810049	Spring	6	
29	4613054026G0	O- ring	2	
30	4613140035G1	O- ring	1	
31	4613118026G1	O- ring	1	
32	21070040	Seal ring	1	Rack part
33	21060135	Gasket	1	
34	21040004	Gasket	1	
35	27440015	Gasket	1	
36	20020001	Upper rubber cushion	4	
37	20030001	Lower rubber cushion	4	
38	599000001207	Screw plug seal washer	1	
39	599000001213	Screw plug seal washer	1	
40	4613033027G1	O- ring	2	
41	4613043035G1	O- ring	1	
42	4613011027G0	O- ring	1	
43	4613041018G1	O- ring	1	
44	21060250	O- ring	1	
45	4613036035G1	O- ring	2	