
Operating Manual

J1250

Continuous Tubular Centrifuge

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Contact Us

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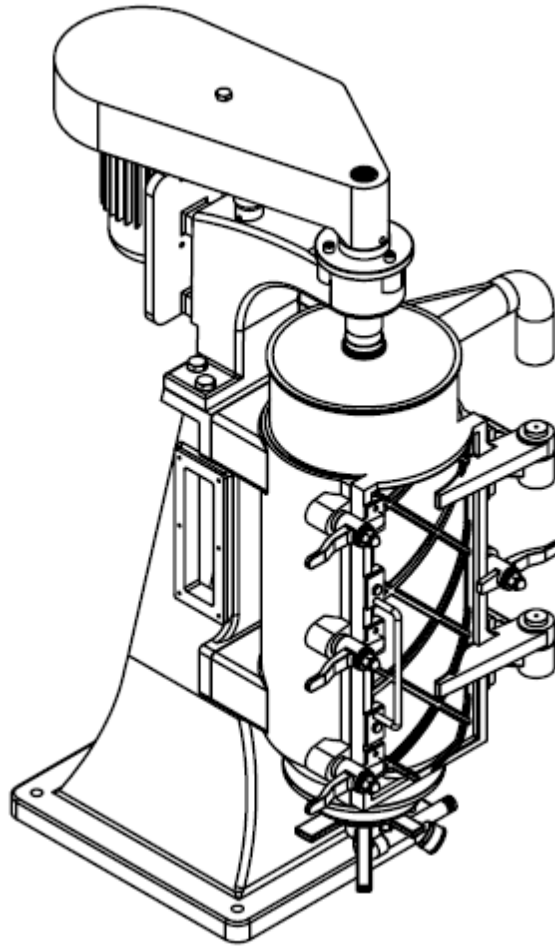
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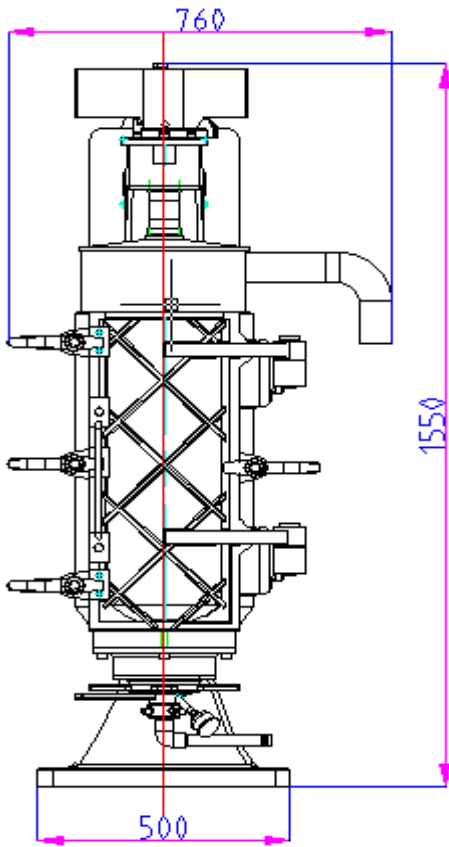
1. Technical Specifications



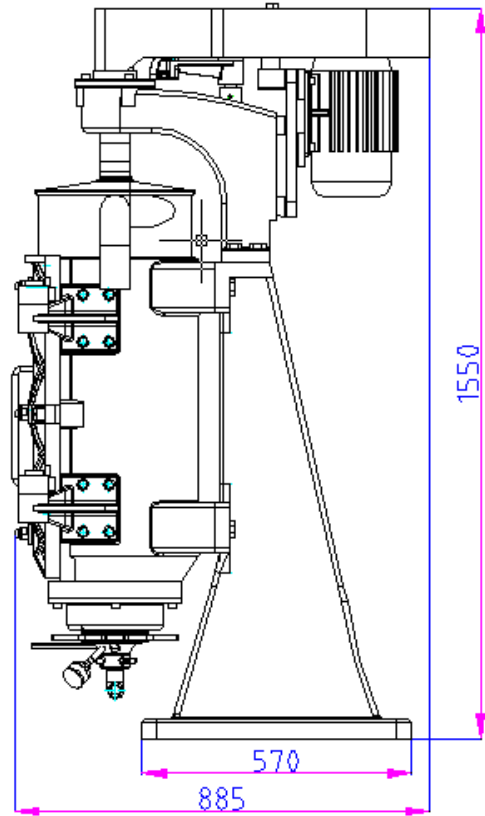
- Model : J1250 (TUBULAR SEPARATOR)
- Speed : 15,000 RPM / 15,800 xg
- Bowl Capacity : 9 L
- Bowl Dimension (inner) : 125 (Ø) x 735 (L) mm
- Bowl Material / Weight : SUS / 27 kg
- Time Control: 99 hr 59 min 59 sec or Continuous

2. Appearance

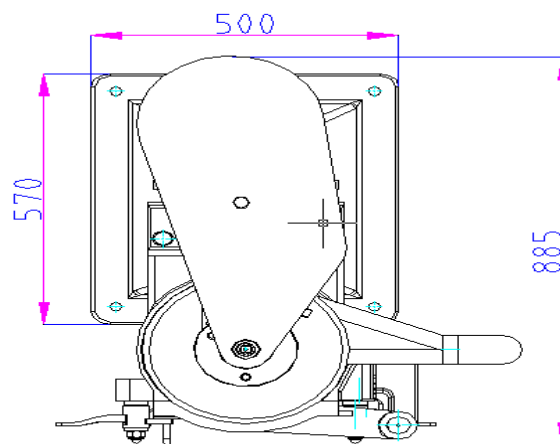
Front View



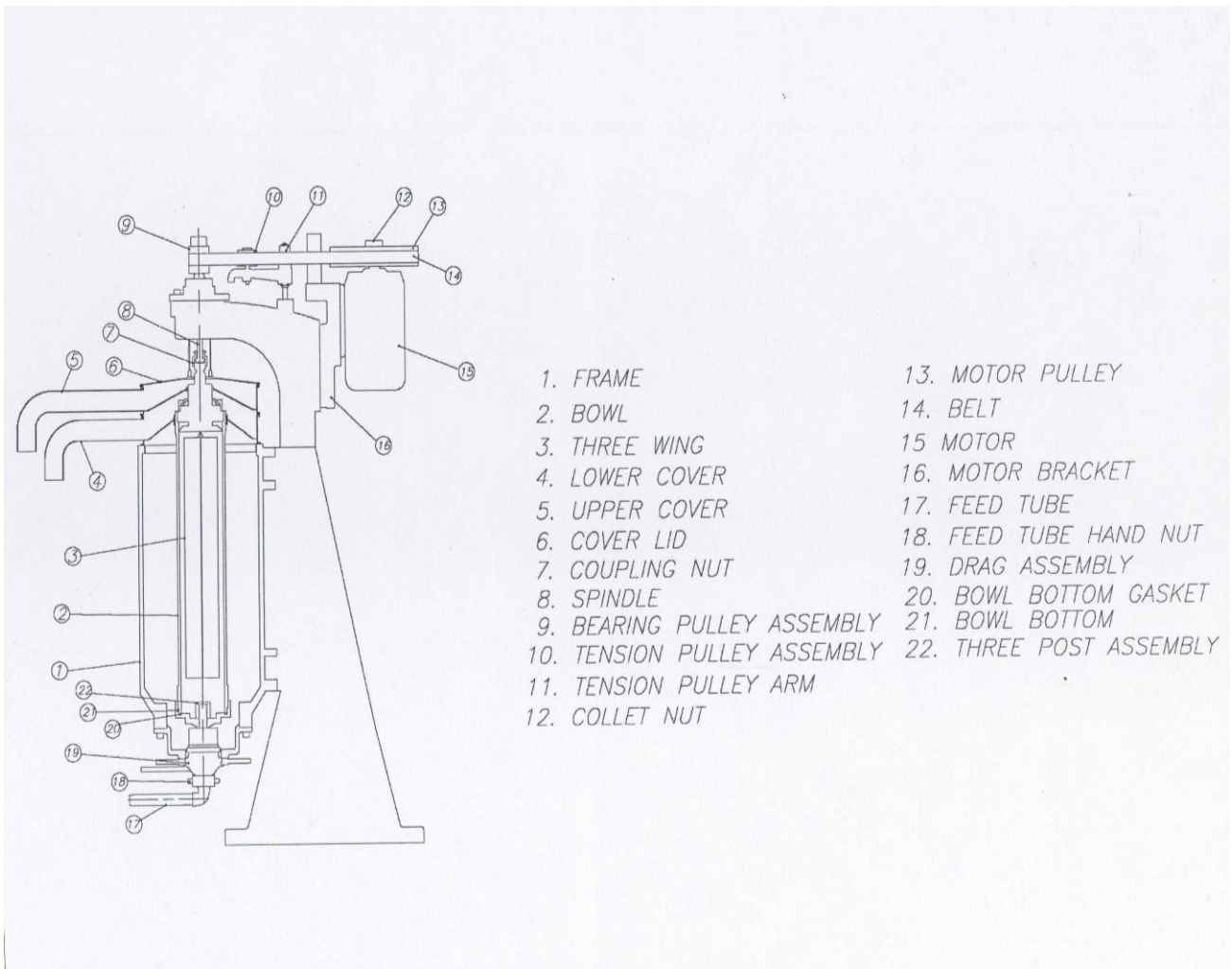
Side View



Upper View



3. Structure



4. Installation

<BASE>

The device should be installed on hard and flat place where anchor bolts should be installed.

<INSTALLATION>

For the installation, please contact technical staff and get assistance from Hanil technical staffs.

For balancing, put a level on the top of the bearing pulley and check the balance. The space between main body and wall should be at least 60cm and empty the front space.

<Electrical Wirings>

1. Place the controller and control panel where easy to operate.
2. After temporary wiring, check the operation in low speed.

The rotation direction of the motor is clockwise direction same with that of bowl rotation.

3. If the control panel or operating panel is to be produced, ask for the electrical drawing to Hanil Scientific Inc.

4. Problems or overload can be easily recognized because all the parameters and status are displayed on inverter.

4. Installation

<Piping>

1. Please use flexible tube on the feed pipe and please don't use fixed type.
2. Please collect samples in cushion tank when the samples to be transferred to other tank or transfer through other pipes. This is for preventing the spouting.
3. The optimal feeding pressure is between 0.1~0.5kg/cm².
4. The feeding pipe should be located on the side of machine. Please empty the front side.

5. Precautions

Because the J1250 spinning in high speed, to prevent any accident, please read following instruction very carefully.

1. Please check all the parts very carefully before operation.

Especially, check the system very carefully after others' usage.

2. Please remove any other items like towel or clothing that can be sucked into the machine.

It is particularly dangerous to touch the rotating part with gloves on.

3. Please don't open bowl cover by when the machine stopped completely.

4. Please check the system and parts regularly.

5. If the current keeps between 2-3 Amp one minute after operation, it is the normal operation.

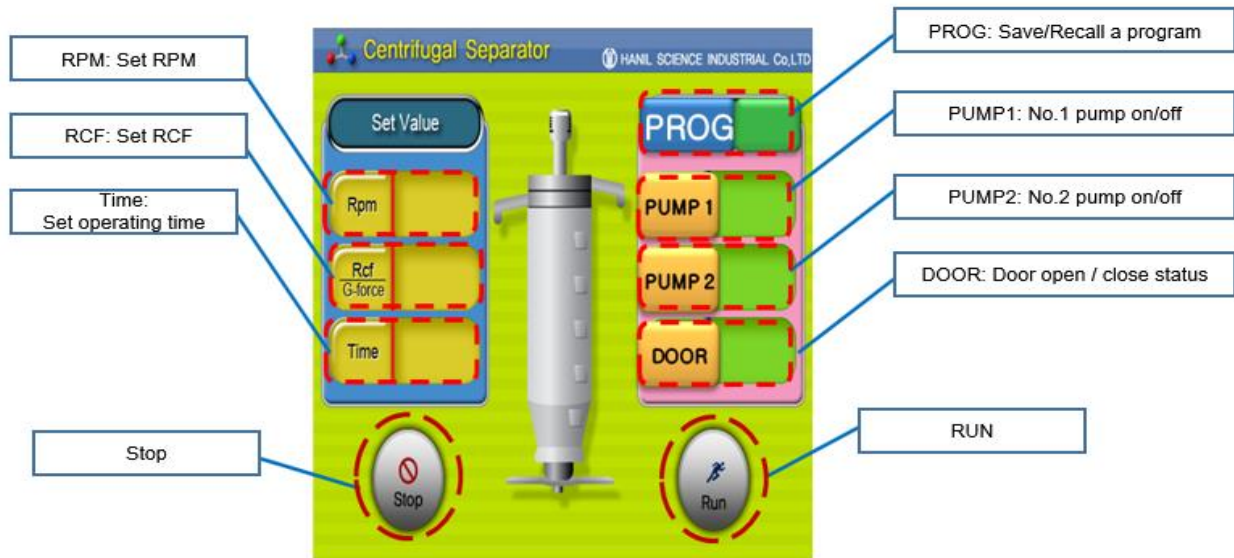
But when other cases like higher current value, big noise or vibration are found, stop the machine immediately and check very carefully. Please don't operate by when all the problems are cleared.

5. Precautions

6. Pay particular attention to the handling of the bowls and ensure that the threads are not scratched.

7. Please use only plastic hammer for assembly or disassembly and don't use metal hammers.

6. LCD Display Operation



Operation

[Set Value]

- RPM/RCF: Set RPM or RCF
- Time: Set operating time. Up to 99 hr 59 min 59 sec or Continuous
- PROG: Save or recall a program
- PUMP1/2: Each pump can be controlled and the pump is activated after the set rpm has been reached.
- DOOR: Display whether door is open or closed.

6. LCD Display Operation

- ▶ After entering the setting value, touch the Run button.
- ▶ Level Sensor(optional): It is used to prevent overflow of the sample. A beep sounds when 80% of the used sample container reaches. The pump stops when it reaches 90%

7. Data on the Inverter and Diaphragm pump

Specification

No	Fixed No.	Description	Set Data
1	A1-01	Access level	4
2	B1-01	Currency selection	2
3	B1-02	Operating type selection	2
4	B2-02	DC control currency	40
5	B2-04	DC control time for the stopping	10
6	C1-01	Acceleration time	400
7	C1-02	Deceleration time	600
8	E1-01	Input voltage setting	380
9	E1-04	Max. voltage frequency	160
10	E1-05	Max. voltage	380
11	E2-01	Motor currency	9.34
12	H5-01	Station address	1
13	H5-05	Transfer error detection selection	0
14	L2-01	Moment power selection	1
15	L3-01	Stall prevention during acceleration	0
16	L3-04	Stall prevention during deceleration	0
17	O1-03	Currency order setting	2

- After input all the parameters, turn off the system for 10 seconds and on.

7. Data on the Inverter and Diaphragm pump

The counterplan for the problems

Signal	Description	Cause	Counterplan
OC	Excess current	Motor overload	Increase the accel (C1-01), and decal time (C1-02).
OV	Excess voltage	Short deceleration time	Increase the deceleration time (C1-02)
UV1	Low voltage	High fluctuation voltage	Use power transformer
OL1	Motor overload	Motor overload	Increase the acceleration (C1-01), and decal time (C1-02)
OL2	Inverter overload	Inverter overload	Increase the acceleration (C1-01), and decal time (C1-02)

7. Data on the Inverter and Diaphragm pump

J-1250 Inverter Data

RPM	<i>Inverter Set Data(RPM)</i>
10,000	<i>2320</i>
11,000	<i>2550</i>
12,000	<i>2780</i>
13,000	<i>3010</i>
14,000	<i>3250</i>
15,000	<i>3480</i>
<i>16,000</i>	<i>3710</i>

Gear Ratio : 1/4.32(4.44)

<Inverter RPM setting>

Press "ENTER" → Select parameters using arrow keys → Setting all the parameters

→ Press "ENTER" and press "ESC" to return to setting mode.

7. Data on the Inverter and Diaphragm pump

<J1250 Control Input>

1. Touch the Set Value
2. Input 00:02:26 on the RPM Calibration UP and press Enter
3. Input 00:03:41 on the RPM Calibration Down and press Enter
4. Input 15000 on the RPM and press Enter
5. Time Example) Input hour, minute, second and press Enter

1. Touch the Current Value
2. Input 4.32 on the Motor percent and press Enter

Touch the lower part of the body rotating on the LCD of the controller

1. Input 6.2814 on the Rotor Radius and press Enter

Touch ∴ Centrifugal Separator

1. Input 1987 on the Pass Word and press Enter

7. Data on the Inverter and Diaphragm pump

Touch  and you can check the final input data

Debug Window		X
Program. RPMupcount	102	
Program. RPMdowncount	67	
Program. Motor Percent	4.32	
Program. Rotor Radius	6.2814	
Inverter RPM	15000	
Inverter Input RPM	3472	
Number	0	
RPM Set	15000	

Touch  after checking the above table and then start operating.

When you operate next time, set up the RPM and Time

Set up the RPMupcount and RPMdowncount as well for the motor to be operated

In case the equipment doesn't work, reset the RPMupcount and RPMdowncount

7. Data on the Inverter and Diaphragm pump

<P/G Change when particular operating>

1. In the input details of INVERTER SETTING
2. No. 08 : Change b1-01=2 to b1-01=0
3. No. 10 : Change b1-02=2 to b1-02=0
4. No. 76 : Touch DATA/ENTER key

Example) In case the RPM is 15,000, press Δ , ∇ , \triangleright key and input 3480

The details of input values are as follows

RPM10,000 = 2,320RPM

RPM11,000 = 2,550RPM

RPM12,000 = 2,780RPM

RPM13,000 = 3,010RPM

RPM14,000 = 3,250RPM

RPM15,000 = 3,480RPM

RPM16,000 = 3,710RPM

Touch DATA/ENTER key

Turn the S/W off and turn the S/W on again after finishing input

And then, starting RUN and STOP

8. Assembly and Operation

Assembly

1. Install the Drag Assembly using hammer (Except part No. 38, 39 and 40)
2. Install the bowl into the drag hole located in frame
3. Install the sample collector.
4. Close the front door and lock using the hammer.
5. Press down the spindle (caution : Part No. 8 and 9 should be located in straight line)
6. After confirm the clutch on no. 4, connect the spindle and bowl using hammer and wrench.
7. Press down the spindle sleeve cap and tighten the screw.
8. Connect the 38, 39 and 40 on the Drag Assembly with hammer.
9. Connect the sample in Line hose.
10. Input the grease cap.
11. Reconfirm all the procedure again and operate the motor.

8. Assembly and Operation

Operation

1. After assembly, install the belt and adjust the tension on the Tension pulley and spin the Motor Pulley by hand to check.
2. In the beginning, there is some vibration but as speed increases, it becomes more stable (reaching 15,000 rpm/min in 1 minute).
If there are big noise and vibration, please stop the machine immediately and check it out. Most of the case, it caused by wrong assembly.
3. Only when there is no problem even if reaches setting rpm, power on the diaphragm pump and start sample separation (But if there is no controller, rpm value is not displayed, input the samples after 5 min).
4. Automatic stop after setting time is finished (Because machine should not be stopped during sample feeding, stop the sample feeding first and stop the motor)
5. With stop the machine, because residual samples should be discharged through drain on side, please install the Drip port.

Disassembly

Follow reverse order against assembly order

9. Drag

Structure

The figure shows the cross section of the drag assembly. This part is supporting the bowl bottom and works as the sample inlets. It is maintained the locations by drag spring and 6 of the bullet catches. The nozzle is tightened by the hand nut.

Disassembly

1. Make the lever head for the bottom by pressing inside the drag lever using the plastic hammer and remove the drag from the frame by hand. Drag can be removed on vertical direction.
2. Please remove the drag shell together with spring using the drag shell wrench.
3. The ferrule cap can be removed by hand. If it doesn't work, please tap the side of the Ferrule cap with the plastic hammer.
4. The drag bushing can be removed by pressing from the bottom on the ferrule body.
5. The bullet catch can be removed from the ferrule body by pressing from inside. Disassembly or replacement is not required only except when the ball tension on the bullet catch got weakened

9. Drag

Assembly

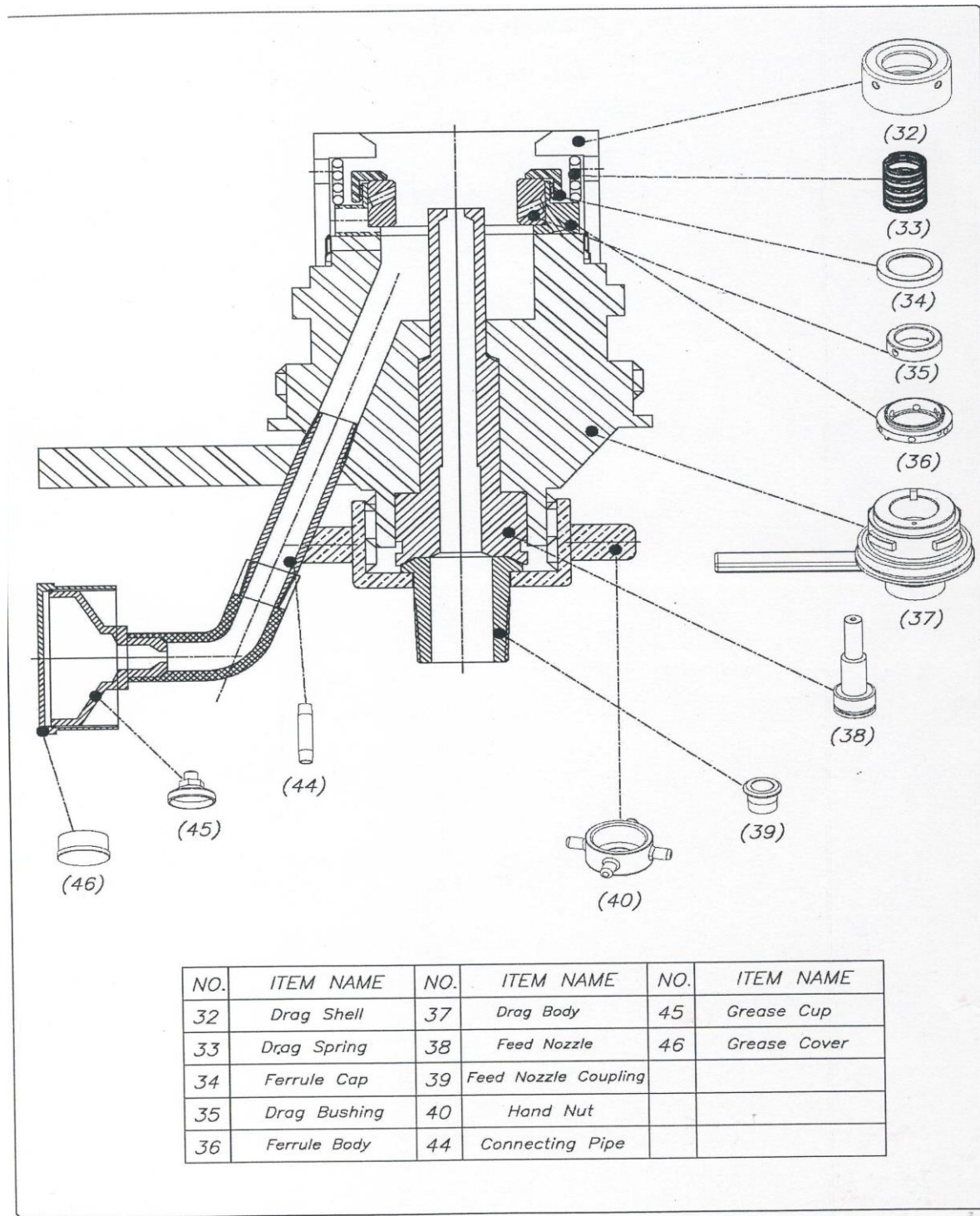
Follow reverse order on disassembly. Please make sure grease from but bushing hole by twisting the grease cup.

Caution

1. The bowl can be vibrates when the drag spring tension got weakened. Please replace it.
2. The bowl also can be vibrate when there is unbalance on the bullet catch tension. Please also replace it.
3. If abrasion on the drag bushing is more than 1.6mm, please twist half cycle and reuse it. One bushing can be used twice. Most of cases on the vibration caused by faulty bushing. Please check dust or scratches during assembly.
4. Please use high quality graphite grease on the drag bushing at the first 1/4 spin and every 2~3hours. (Please use edible grease)
5. Please clean up the drag once in a week. Depending on the treating solution, you need to clean up everytime it finishes working

9. Drag

Drag Assembly Drawing & Parts



10. Trouble Shootings

Damages on the belt damage

1. Is there any damage on the bearing pulley, Idler pulley, or motor pulley? If so, please make smooth using the emery paper.
2. The belt doesn't work on the upper or downer regions on the pulley? If so, adjust the location of the Idler arm so that it spins in correct position on the Pulley.

Damages on the drag bushing

1. Is the balancing of the machine is correct? Unbalancing creates big damages on the machine.
2. Is the tension on all of the 6 bullet catches same?

Damages on the bowl boss sleeve

Unbalance happens to the bowl. Please refer to the followings

Bowl vibration

1. Most balance caused by remaining residues on the bowl. Please clean up after every use. Most of the case residues are remaining.
2. Please check the damage on the bowl spindle connection part (Bowl top). Please don't use sandpaper and use knife or chisel.

10. Trouble Shootings

3. Is there any damage on the spindle? If it is crooked or there is damage on the connection area, please replace.
4. Is there any abrasion on the three wing spring? If the tension on the spring got weakened, it creates the unbalancing.
5. Is there any abrasion on the bowl boss sleeve? If there is abrasion more than 1mm, it creates vibration.
6. Is there any abrasion on the drag bushing? If there is abrasion more than 1mm, it creates vibration on the bowl.
7. Is the tension on the bullet catch and drag spring is got weakened? Or is there any remaining oil or debris got stuck on the bottom so that disturbing the tension?
8. Is the neck of the bowl upper region is not crooked? Please contact technical staffs in Hanil.
9. If there is abrasion on the bowl shell or bowl bottom, please contact technical staffs in Hanil.
10. Other unclear vibration, please contact technical staffs in Hanil.

10. Trouble Shootings

Cut on the bowl seal

1. Is there any cut on the bowl bottom gasket or any scratch on the gasket contact regions?

Please remind during bowl bottom disassembly.

Problem on feeding

1. Is there any blockage on the feed nozzle?

2. Is there any leakage on the three wings into the bottom of the bowl? When the tension on the three wing spring, please replace it with new.

3. Is there any problem on the feed pipe line?

Damages on the tension pulley bearing

1. Was there any leakage on the tension pulley gasket?

If so, please replace the ball bearing together with gasket.

Damages on the ball bearing of the bearing pulley

1. If there is damage on the rubber coupling, please check the same case with when damages on the Rubber coupling.

2. Is there any cut on the rubber sealing? Please replace the rubber sealing whenever disassemble the pulley cap.

10. Trouble Shootings

3. Is there any abrasion on the bearing spacer? If the sleeve nut is not tightened properly, then the spacer can be abrasion. The height of new one is 16mm.

Damages on the rubber coupling

1. Is there any damage on the pin of the pulley cap?
2. The rubber coupling and pulley cap are matches well?
3. Sometimes the female clutch and male clutch are not matches well initial stage. As the motor starts, they are match together with sounds four times but it damages on the rubber coupling.

Adjustment of belt tension depend on rotation direction

1. The rotation direction of motor is clockwise. Please confirm the direction before connect belt. For belt connection, first of all, loosen the tension pulley shaft set screw and tension pulley spindle set screw and fix the location of the tension arm.

2. Belt adjustment

The belts are adjusted before consignment but when it damaged or transformed, it suppose to be replaced or adjusted. The adjustments should be done by followings;

2-1 Adjustment of the location of the tension pulley

2-2 Adjustment of the location of the tension arm

10. Trouble Shootings

1) Bearing pulley

The adjustment of the location of the belt for the bearing pulley depends on the location (up and down) of the tension pulley.

2) Motor pulley

The adjustment of the location of the belt for the motor pulley depends on the location of the idler elbow (left and right).

3) The adjustment of distortion on the belt

a. The adjustment of distortion depends on the horizontal angle of the tension pulley.

The contact surface between the belt and the tension pulley suppose to be in center. The belts can be easily unlaced by failure on this adjustment.

* The angle adjustments suppose to be done by several trials.

* The belt is supposed to be in the center and escape getting entangled in the pulley.

MEMO



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