

PRODUCT SPECIFICATION SHEET

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<https://algaecentrifuge.com/products/industrial-algae-centrifuges>

ATD Basket/Bowl Centrifuge

Models: ATDxx



DESCRIPTION:

The ATD series centrifuge is a fast way to extract liquid from solids.

There are two different models, **perforated** and **solid bowl**.

On the solid bowl, the material is fed into to drum through the top opening or feeding pipe on the lid, under the action of the centrifugal force, the liquid-phase passes works up the side of the bowl and out of the top for solid bowl model. The liquid will then collect and flow out of the bottom. The solid material remains inside the bowl until manually purged while running.

For perforated bowl models, the liquid is forced through the filter medium and the discharged out of the bottom of the machine.

The perforated bowl centrifuge comes with filter bags and can be swapped or cleaned once full.

This type of machine can be used for separation of the suspension with particle size less than one micron in solid forms as granular, crystal or fiber. It can also be used for dehydration of the finished objects (e.g. algae, herbs, plants, biofuels, oils, beer wort).

TECHNICAL SPECIFICATIONS

- Contact Parts are made of 304 Stainless Steel. (Complete Stainless models available).
- Custom 3PH/XPF motors
- Perforated "Filtration" Model: Nylon Mesh Filter Bags of 1, 5, 10, 25, 50, 100, 200 Micron (Custom Sizes available)
- Lid has 2 sight ports, and quick connect inlet tube

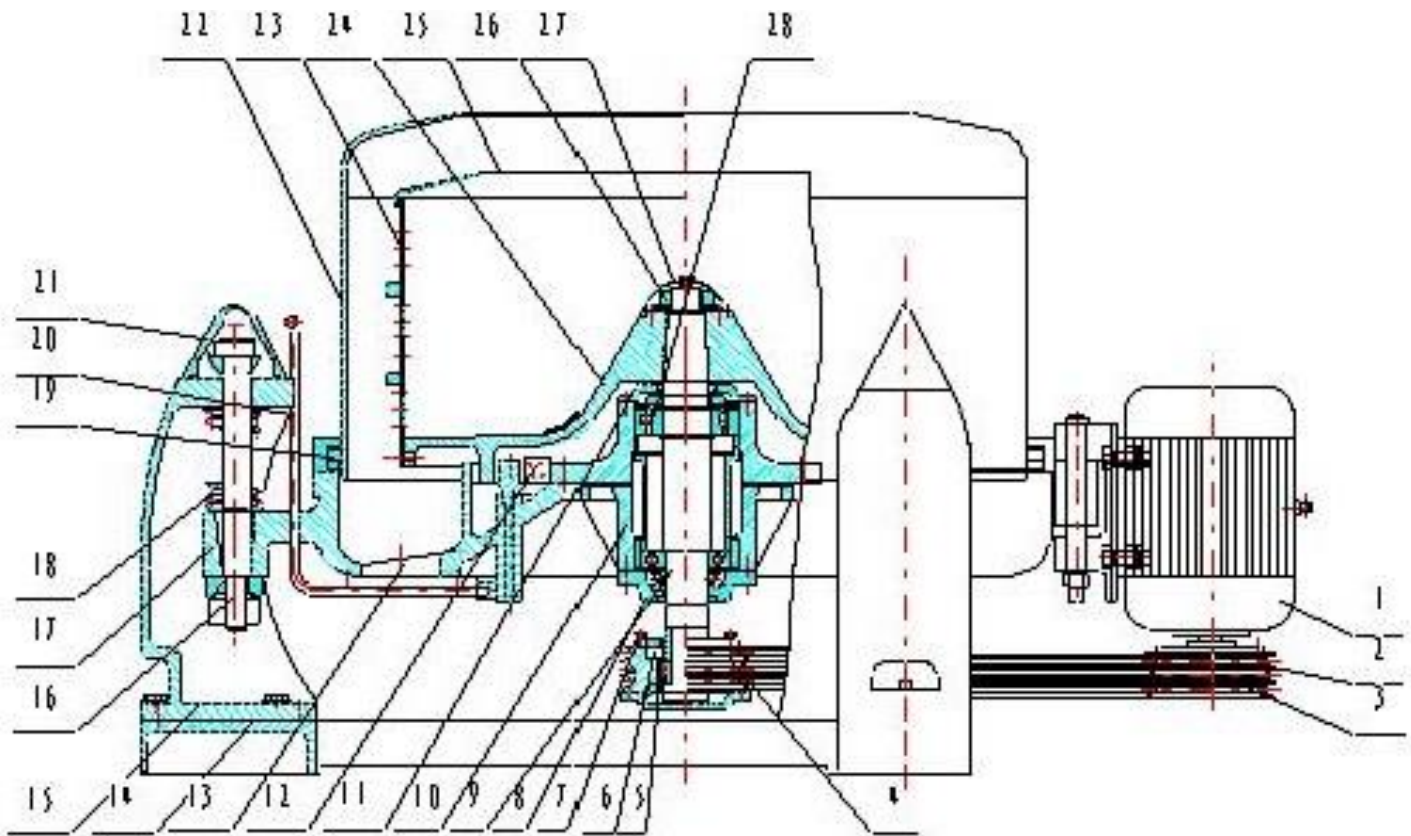
MODEL AVAILABILITY AND ADDITIONAL SPECS

Model	Bowl	Loading Volume			Motor			Dimensions(lxwxh) in.
	Diameter(inches)	Capacity (Gallons)	RPM	G Force	Power(kw)	Weight(lb)		
ATD25	17.5	5.3	1900	910	1.5	550	38.5x28.5x25.5	
ATD50	23.5	10.5	1500	756	3	1900	53x42.5x31.5	
ATD120	31.5	23.4	1200	645	5.5	3000	64x54x39	
ATD135	31.5	26.4	1500	1008	7.5	3400	64x54x39	
ATD200	39.5	52.8	1000	560	7.5	4000	74.5x61x51	
ATD300	47	66	800	431	11	5300	86.5x61.5x55	





COMPONENT DIAGRAM



- | | |
|-------------------------|------------------------|
| 1. motor | 15. post |
| 2. V belt | 16. rocking bar |
| 3. action wheel | 17. chassis |
| 4. driving wheel | 18. buffer spring |
| 5. clutch | 19. sealed ring |
| 6. centrifugal block | 20. brake knob |
| 7. assistant wheel. | 21. post coat |
| 8. bottom bearing cover | 22. shell |
| 9. main axis | 23. drum cylinder |
| 10. bearing pedestal | 24. bottom of the drum |
| 11. upper bearing cover | 25. fluid proof plate |
| 12. peel ring | 26. main axis nut |
| 13. fluid outlet | 27. main bearing coat |
| 14. triangle base | 28. bearing |

STRUCTURAL FEATURES

The chassis (17) as well as the main shaft (9), rotating drum (23, 24 and 25) and frame (22), electrical motor (1) transmission gear makeup of the centrifugal unit. The whole unit depends on three swing links (28) suspending onto three heels (16) with the upper and lower ends of the swing links separately

connecting with the cushion rings as well as heels and the chassis. The swing links are wrapped with the buffering springs (18) and such a suspension supporting method features the main structure of the centrifugal machine. Such a support method allows the frame to have a bigger vibration in the horizontal direction and enables the self-vibration frequency far lower than that of the back swing of the rotating drum, thus to reduce the impact onto the frame and the bearings from the uneven loads and to prevent the vibration from transmitting to the base.

The rotating drum wall is perforated and the inner wall is designed with lining meshwork and filtration fabric (varying micron filter bags). The basket bottom and the counter bore cover are equipped on the upper-main shaft, with a nut fastened firmly. Another end of the main shaft is equipped with a follower, which forms the back rotating part of the centrifuge. The entire rotating part is supported by a group of rolling bearings (28) equipped in the bearing chock (10) and driven by an electrical motor aside the chassis via centrifugal clutches (4, 5 and 6) and a V belt (2). Based on customers' requirements, there are two types of clutches for the centrifugal machine installed under the electrical motor and the main shaft. The clutches can reduce the star-up current for the centrifugal machine and prevent the electrical motor from burning due to overload. The flanges on the bottom part of the frame and the linings on the chassis are sealed with rubber rings (19) and pressed with 6 groups of pressure plates and bolts. The braking handle (20) is installed in the outside of the frame. The spanner handle enables the flat axis to turn around to impel the braking ring (12) to open to the outside and makes the friction wafer to contact with the basket bottom. Thus, such an additional friction moment can consume parts of kinetic energy of the rotating part to realize braking in rotating drum.

FLAMMABLE LIQUIDS

The centrifuge can be used to separate flammable & explosive materials, but precautions must be taken. An explosion proof motor may be required based on your shop/building requirements. We also suggest users to pay attention to the following items:

1. Reinforce ventilation on the operation site, or blow inert gas to dilute the burnable& explosive gas.
2. It is better to use anti-static electricity triangle belt to drive the machine
3. Metal scoop is forbidden when discharging
4. Check the friction blocks in the brake system regularly. Change friction blocks in time when finding the direct contact between rivets and brake

INSTALLATION

Centrifuge should rest on concrete and be bolted into the foundation.

When fixing the base of the centrifuge, a 0.01/m gradient is needed to adjust the plane of the chassis.

When adjusting the balance, the rubber mat with different thickness will be used to make sure the

tolerance is within 1 mm. When doing the second time concrete, the foot screw can drill through the rubber mat and fixed by nut. (Tote: the weight of the machine should spread equally to the three feet)

Sufficient space should be provided for operation and detection of the machine. The space between the centrifuge and the other equipment should be no less than 1m.

Centrifuge must spin Clockwise.

OPERATION AND TESTING

Pre-operation Tests -

1. Check to see all parts are tight, and spare parts accounted for. Check the main shaft nut.
2. Check for proper lubrication
3. Check to see there is no extraneous substance in the casing and the revolving drum. The drum should turn freely by hand.
4. Check the braking device is working properly
5. Ensure real-time power start-up and normal rotation drum running. The rotation direction should follow the direction of arrowhead on the index tag and **rotation in reverse is prohibited**. Run the centrifuge empty at low speed, then high. No-load test is to determine whether the abnormal vibration and noises occur, whether the electrical installation is correct.
6. Load test will define the working parameter and flowrates. Liquid passing through the centrifuge will slow down as the filter media clogs with solids.

Operation -

Suspending liquid is gradually (or for many times separately) added with rotating drum after the centrifuge is running. Feeding should stop when the sediments in the rotating drum reach the load limit or vibration is excessive. Flowrates will vary as the sediment layer increases, flow will slow. Under the centrifugal force produced by the high-speed rotation, the suspending liquid will be thrown off to the in-wall of the frame via the filtration fabric (or lining meshwork) and flow out of the discharging pipe after collecting on the chassis. The sediments will be held back in the rotating drum and operators can get them out by opening it up from the top when the machine is power-off. Cleansing can be finished on the filtration layer via spraying cleaning mixture via the cleaning pipe.

Bowl Removal – Remove set screw and cap. Then turn the large retention nut **Clockwise** to unscrew. Bowl will then lift off.

The centrifuge and filter media should be regularly inspected for signs of wear and deformities. It is a requirement for it to be inspected and maintained after 6 months of operation, and the record should be made which inspection and maintenance as follows:

1. Any oil site must be replaced for the lubricating grease (No.3 lithium grease) after
2. being cleaned. Its principal oil sites include the upper and bottom bearings, the bearing and the gears in the uncapping frame.
3. Check bearings for breakage or excessive wear and whether the matching by the inside and outer ring, the shaft, and the casing becomes loose
4. Check the triangular belt for wear or stretching
5. Check the seal wear or for signs of leaking
6. Check the revolving drum for deformation, corrosion, especially for the corrosion in the longitudinal welding seam, if it becomes thinning down greatly or appears the micro-holes in the black honeycomb, the apparent cracks exist in the boundary surface between the welding seam and the parent metal, and non-metallic sound while knocking on the welding seam, etc, it must be taken out of service.

The cleaning, the spare parts replacement or repairing should be done based on the inspection result. If it is serious in the deformation or corrosion, or the revolving portion is wore heavily, the major overhaul or the spare part replacement should be done. It is not allowed to make any emergency measure by the surface repair welding, etc.

The revolving drum is a principle working portion for the centrifugal, which is a high-speed revolving parts it is provided with the strict dynamic balancing and inspection in its manufacturing which longitudinal welding seam is provided with X ray defects detection.

In the operation, it is not allowed to have any device attached in the revolving drum. It is not allowed to make an optional hole, welding and disassemble the spare parts in the drum wall. In the inspection and maintenance, it is not allowed to disassemble the barrel and the bottom of the revolving. A new dynamic balancing should be made after disassembly and replacement of own accord. To ensure the completeness of the centrifugal, It is not allowed for disassembly, replacement for the additional spare parts or adding the auxiliary devices without a permission.

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