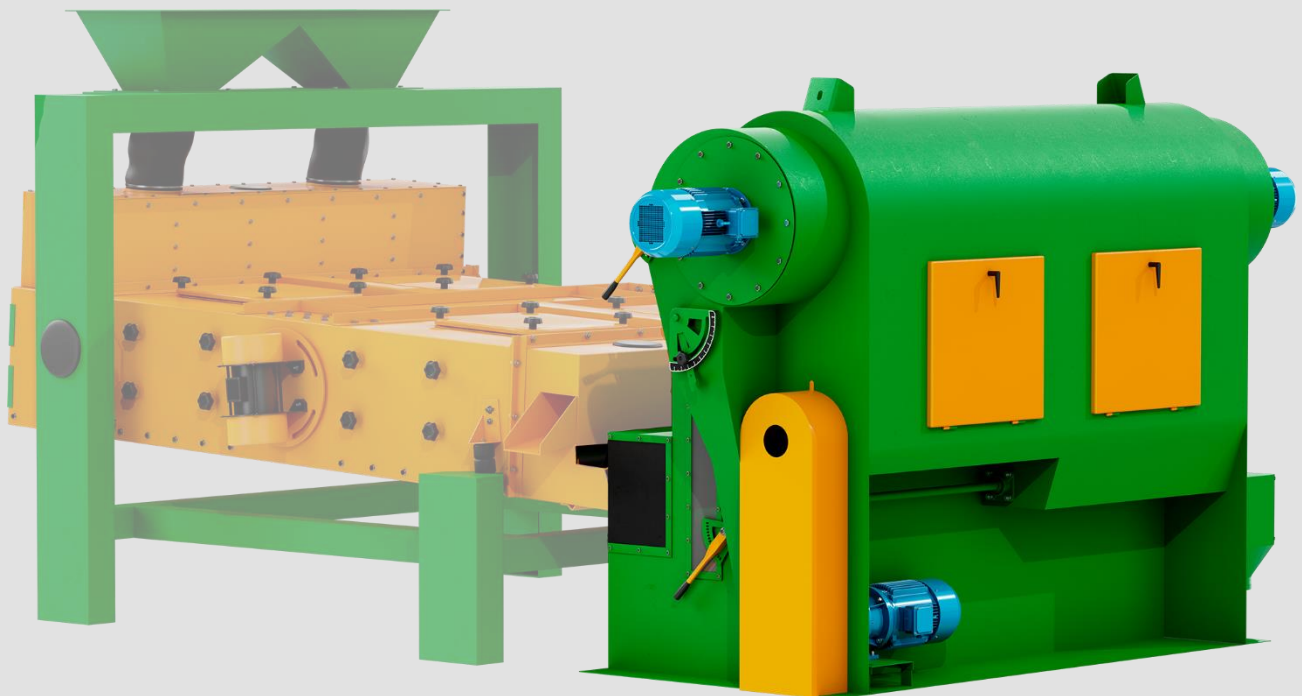




Air Recycling Aspirator

METRA ARC USER MANUAL



I. Application scope

ARC series Self circulation air separator is specially used to separate low specific gravity impurities such as husk and dust from grain (such as wheat, corn, barley, oil, etc.) by suction. It can be used in grain depot, flour factory, rice factory, corn processing factory, oil factory, feed factory, starch factory, alcohol factory, etc. It can be used alone or combined with vibrating screen, plane rotary screen or wheat beater.

II. Structural features (Fig.1)

The biggest feature of this machine is that it has its own fan, which can separate light impurities in grain by air self-circulation and suction.

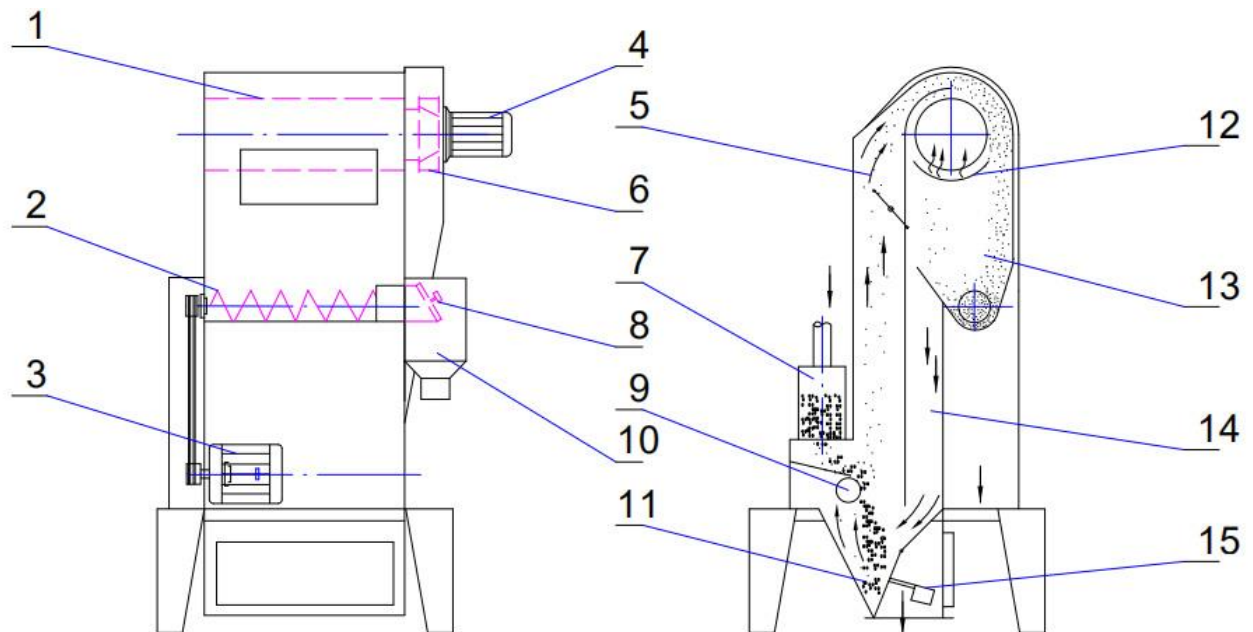


Fig.1
Structure and schematic diagram

- | | |
|------------------------------------|---------------------|
| 1. Light impurity separator | 9. Roller feeder |
| 2. Impurity removal screw conveyor | 10. Impurity out |
| 3. Gear motor | 11. Clean grain out |
| 4. Motor | 12. Air guide grid |
| 5. Suction duct | 13. Dust chamber |
| 6. Centrifugal fan | 14. Return air duct |
| 7. Feed hopper | 15. Pressure valve |
| 8. Closed air device | |

III. Working principle (Fig.1)

Grain particles enter the hopper (7), and fresh air will not enter the suction duct (5) from the feeding port due to accumulation. Under the rolling of the roller, grain particles are sent into the suction duct. Under the action of the circulating air flow, the light impurity particles are sucked into the separation area and then into the centrifugal separator. Here, the light impurity particles are separated from the air flow and fall into the dust chamber (13), and then the screw conveyor pushes them horizontally to one end to be discharged through the pressure door air shutter (8). The centrifugal fan (6) sucks the air away, and then returns to the suction duct (5) for circulation through the return duct (14). And the heavy grain purified by air suction flows into the material outlet, and the material door (15) is opened by the material weight function, thus the material is discharged.

IV. Main technical parameters

Metra ARC	Capacity		Power	Supplementary air intake		Weight	Dimension L×W×H
	cleaning	Pre- cleaning		cleaning	Pre- cleaning		
ARC 400	640 bu/h 16 t/h	1600 bu/h 65 t/h	1+2.9 hp 0.75+2.2 kw	212 cfm 360 m ³ /h	353 cfm 600 m ³ /h	1014 lbs 460 kg	63.5×39.4×68.7 in 1613×1000×1745 mm
ARC 800	800 bu/h 20 t/h	3320 bu/h 83 t/h	1+2.9 hp 0.75+2.2 kw	235 cfm 400 m ³ /h	382 cfm 650 m ³ /h	1102 lbs 500 kg	87.6×39.4×68.7 in 2226×1000×1745 mm
ARC 1600	960 bu/h 24 t/h	4000 bu/h 100 t/h	1.5+2.9×2 hp 1.1+2.2×2 kw	283 cfm 480 m ³ /h	424 cfm 720 m ³ /h	1455 lbs 660 kg	97.5×39.4×68.7 in 2476×1000×1745 mm
ARC 2000	1120 bu/h 28 t/h	4200 bu/h 105 t/h	1.5+2.9×2 hp 1.1+2.2×2 kw	306 cfm 520 m ³ /h	447 cfm 760 m ³ /h	1720 lbs 780 kg	109.3×39.4×68.7 in 2776×1000×1745 mm

Note: 1. The treatment capacity will change with the type of material and the requirement of impurity separation degree;

The motor power of fan is 2.0HP (1.5KW) when processing sesame seeds.

V. Transportation and installation

1. Transportation

During transportation, the net grain export parts shall be transported separately from other parts of the machine. When lifting the device, be sure to use the two lifting eyes on the machine.

2. Installation

The machine shall be installed in different ways according to the dimensions provided in Fig. 2-4. The base shall be firm and the connection shall be reliable. **Note: the grain hopper must be installed.**

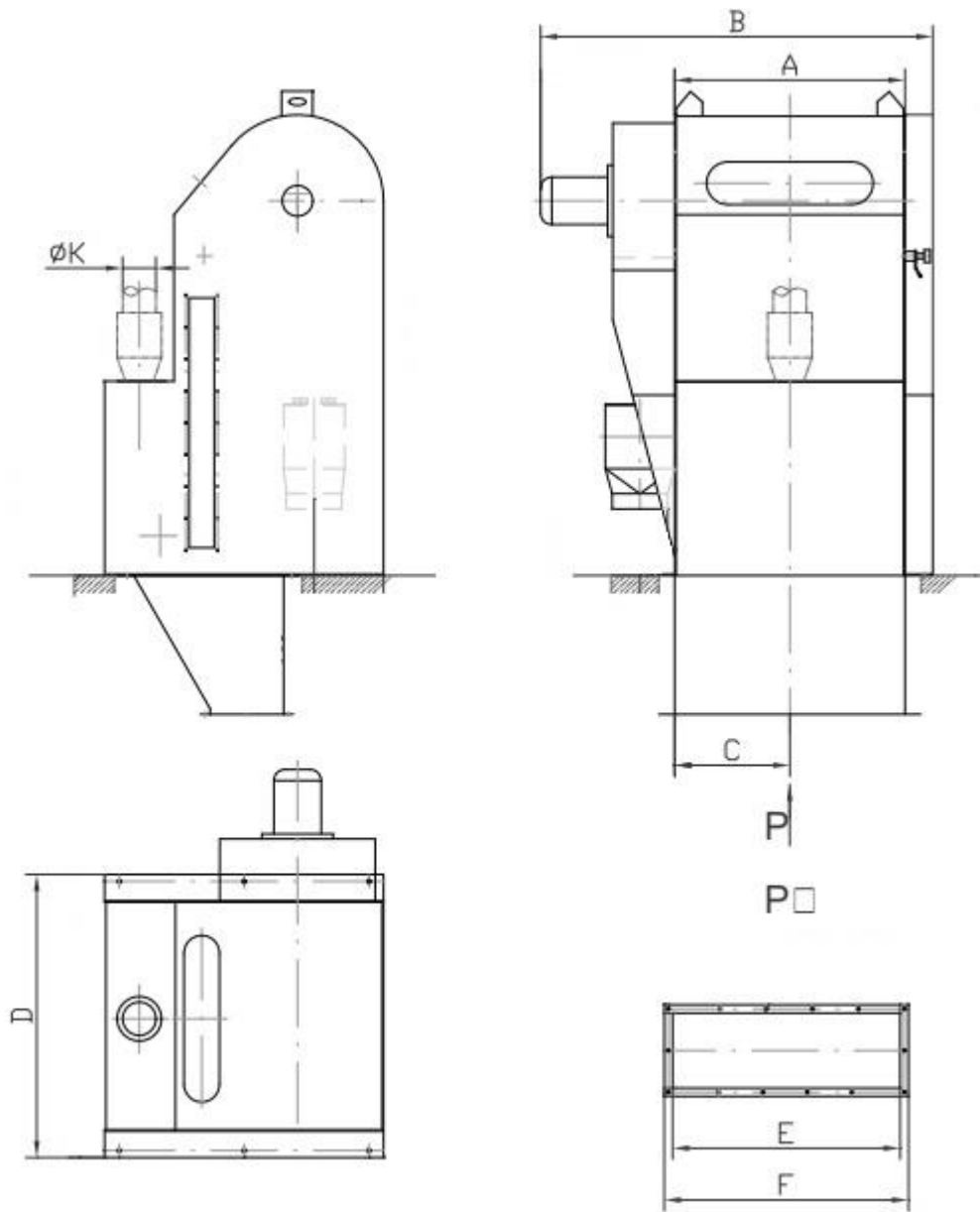


Fig.2
ARC 400-600 sample drawing

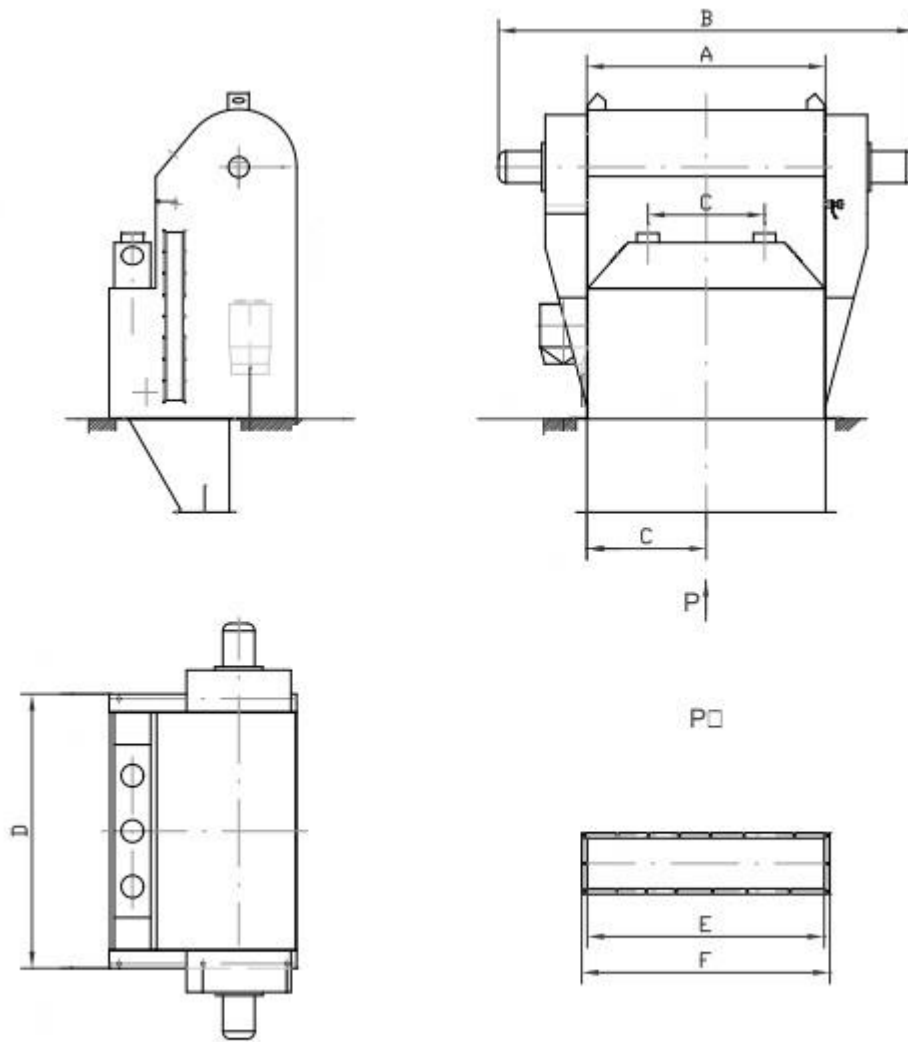


Fig.3
ARC 1600-2000 sample drawing

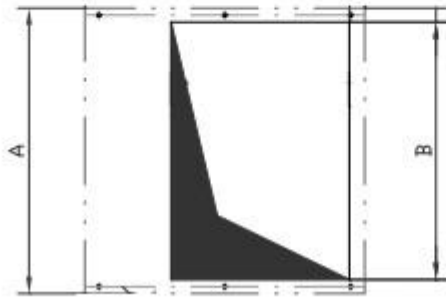
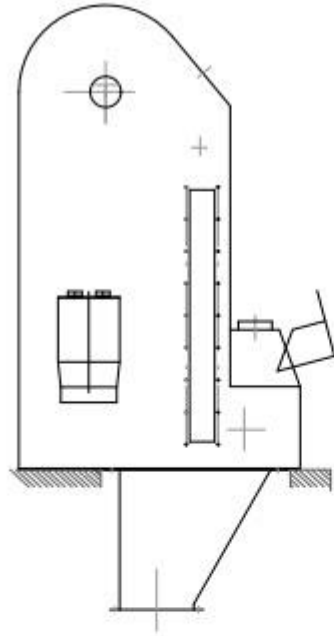


Fig.4
ARC 400-2000 Hole diagram

Note also:

(1) In order to ensure that the machine is free of dust, its feed port must be connected with supplementary air suction, and its air volume needs to see Table 1.

(2) When the machine is used alone, a buffer box must be installed before the feed port (within 0.5m) to slow down the falling force of materials. During installation, the reserved holes in the floor are shown in Figure 1. See Fig. 5 when it is used with the vibrating screen of our factory.

VI. Power connection and safety

1. Power on must ensure that the rotation direction of the motor is the same as that of the fan, according to the direction indicated by the arrow on the machine.

2. For the sake of safety, the machine must be equipped with a special switch to ensure that the power is cut off and locked at any time during maintenance and inspection.

3. The cover plate at the back of the machine is for cleaning, but do not open it when the machine is working.

VII. Run operation

1. Inspection before operation

(1) It must be equipped with driving protective cover;

(2) The air deflector must be locked;

(3) All inspection rubber covers and cover doors must be closed;

(4) The rotation direction of the fan must be consistent with the direction of the arrow;

(5) The V-belt must be properly tensioned

2. Adjustment of material discharge before operation

Adjust the position of the weight on the pressure valve at the outlet of heavy clean grain to ensure that the pressure valve is just in the closed state when there is no material.

3. Operation

Adjust the handle to achieve good separation effect by changing the wind speed of the suction duct.

VIII. Maintenance

1. Trigonal zone

When tightening, adjust the center distance of the belt pulley so that the belt can be installed easily. Never use crowbar or screwdriver to force the V-belt. After the belt is installed, turn the pulley wind ring and tighten the belt, and then start the machine for a few minutes to make the V-belt adapt to the correct position in the wheel groove, and then stop the belt to tighten it to a proper degree. After 24 or 48 hours of normal start-up operation, the tension shall be repeated, and then the tension shall be checked again every three months. During each tension, a force of 2kg is applied vertically to the center of each belt to determine the degree of tension.

2. Separator

Check whether there is dust on the air guide grid plate of the separator. If there is, open the rubber cover on the other side of the fan, clean the inside, or open the cleaning door and turn on the air guide grid plate for cleaning.

3. Bearing lubrication

Add grease to the bearing every half a year. When adding oil, use a grease gun to add oil until the sealing part flows out. The pressurized oil shall not be too fast, and the shaft shall rotate gently to ensure that the grease in the bearing is even. After refueling, move the machine frequently for 2-3 times (about 1 minute each time), so as to drain the excess grease, prevent the bearing from overheating, and then start the machine normally.

4. Closed air pressure valve

In order to ensure the dust-free operation of the machine, it is required to check the movement of the pressure valve every three months, and it is required that the pressure valve is just closed when there is no material.

IX. Repair

1. Disassembly and assembly of bearing and pulley

Before disassembling the bearing every time, the clear positions of the bearing, pulley and shaft end shall be accurately recorded, and the recorded dimensions shall be strictly followed during assembly to ensure the alignment of relevant parts.

2. Disassembly and assembly of fan

(1) Disassembly

Remove the cover plate, the fan motor and fan impeller can be removed;

(2) Assembly

The assembly sequence is opposite to that of disassembly. However, it must be noted that there should be a gap of 2mm between the fan impeller and the separator.

3. Disassembly and assembly of separating cylinder

(1) Disassembly

First, take out the fan impeller, loosen the bolts, and then extract the separation air cylinder from the fan housing.

(2) Installation

The sequence is the same as that of disassembly, but it must be ensured that the circumferential position of the air guide grid plate is correct (directly below).