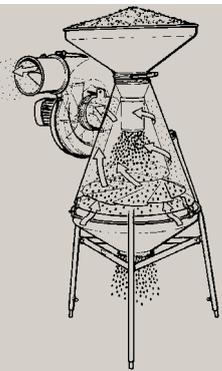


# Cleaning



Kongskilde Dual Cleaner and Aspirators

# Kongskilde Aspirators



KF 12 mode of operation.



KF 12.



FRL 10 blower can be used to vacuum off dust, for instance, on the discharge of grain driers or dust extraction spigot on elevators, augers etc.



Cyclone for discharge of dust.

Aspirators are suitable for removing dust and light impurities from grain.

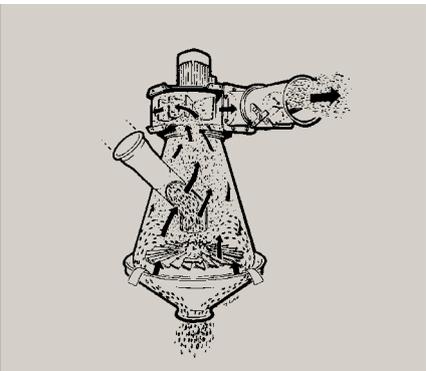
In an aspirator the grain passes through an upwards moving air stream.

The air stream picks up dust and light impurities, whereas gravity allows the

grain to fall down into the bottom outlet of the aspirator.

The dust and light impurities follow the air stream through the blower and on into a pipeline to the desired location for discharge.





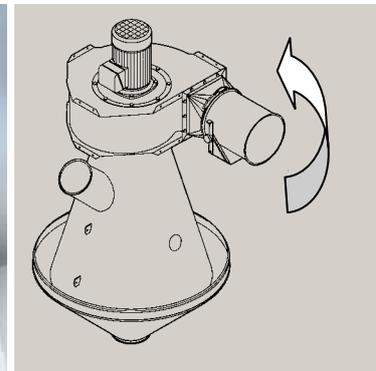
KF 40 mode of operation.



KF 40 fitted with support legs.



Air regulation for adjusting the suction power of the aspirator.



Blower outlet can be turned in all directions.

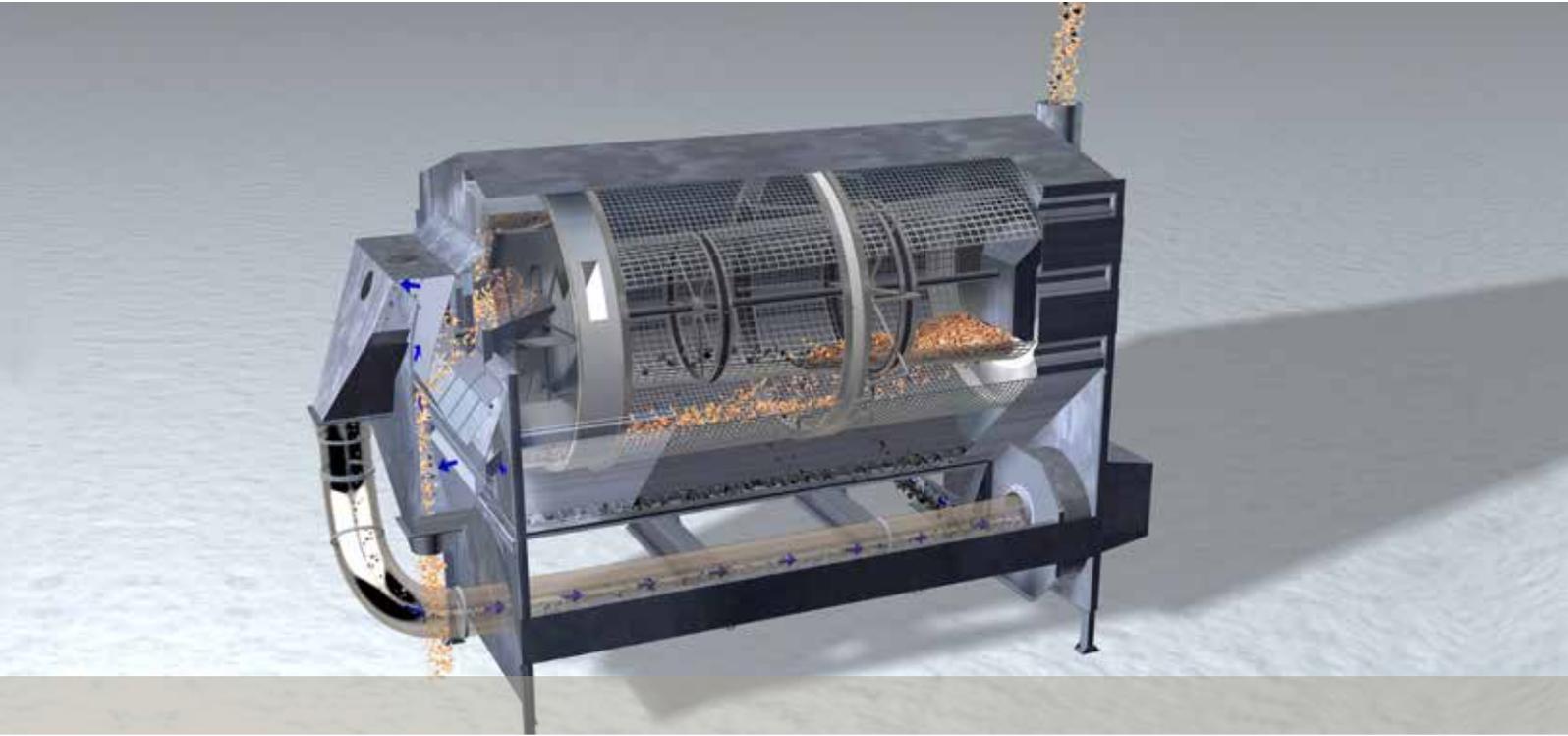
The construction of the pre-cleaner provides many options for integration in a grain plant:

- Modular system for large flexibility for build-in solutions.
- Easy access for regulation of the cleaning function, the regulation can be installed anywhere in the pipe line.

- Installing the cleaner so the grain passes the cleaner both at the intake and outlet provides an optimal solution.

Technical data	KF 12	KF 20	KF 40	KF 60
Max. capacity (barley) t/h	12	20	40	60
Motor size blower motor kW (HP)	0.75 (1.0)	1.5 (2.0)	5.5 (7.5)	7.5 (10)
Motor RPM	2,900			
Motor type	Flange motor Norm motor B5			
Weight (incl. motor) kg	75	105	250	260
Conveying pipes for waste	OK 160	OK 200	FK 300	2 x FK 300
Max. recommended conveying length for waste (m)	25	15	15	15

# KDC 4000 Combi-Cleaner



Screens are easy fitted by means of quick release system. No tools required.



Screen drum with 2 layers of screens. The Inner screen works as scalping screen retaining oversize impurities. The outer screen is a sand screen where small impurities are sorted from the prime product.



Panel for start/stop of motors in the right order, so blocking of the KDC 4000 is avoided.

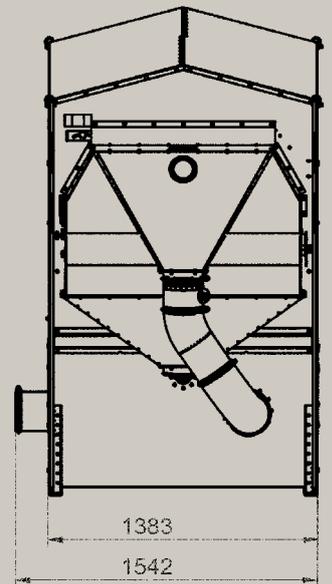
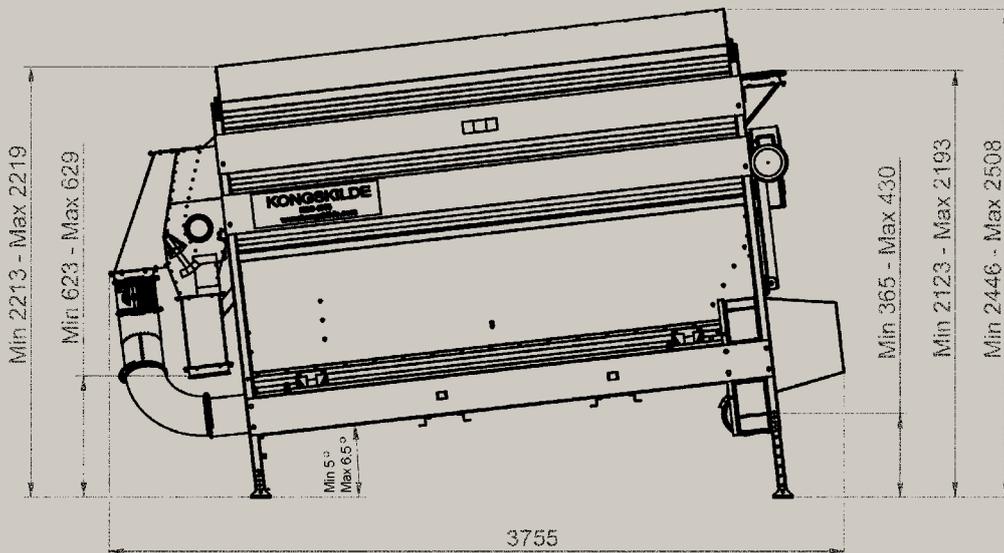


A handle placed on the outside cabinet makes it easy to adjust the aspirator function without any tools.

KDC 4000 is a dual cleaner, with screen and aspirator function. The screens sort by means of size, in the aspirator unit light impurities and dust are removed by means of air.

- Only rotation parts – no vibration transmitted, which reduces stress and wear on the components.
- All components exposed to the ambient made in galvanized steel suitable for outdoor installations.
- Wear spots made of stainless steel.
- Screens for size separation of grain kernels.
- Standard panel, only power supply required.

<b>Drum drive</b>	Unit	50 Hz	60 Hz NA
Screen drum	RPM	21.9	21.9
Motor size	kW	1.5	1.5 (2 hk)
<b>Blower for aspirator</b>			
Blower	RPM	2,900	3,500
Motor size	kW	4	4 (5 hk)
<b>Auger drive</b>			
Motor size	kW	0.75	0.75 (1 hk)
Motor	RPM	1,380	1,740
<b>Panel</b>			
Power supply		3x400V, 50 Hz 13,4A	60 Hz
<b>Complete machine</b>			
Weight without screens	kg	890	890



The first bottom outlet can be opened, if you want to collect small kernels together with the screenings from the outer screen.

KDC 4000 model with outlet hoppers, without auger. Ideal for cleaning crops with large impurities such as maize.

Cleaning brush ensures optimum cleaning of all times by keeping the outer screen clean.

KDC 4000 can be fitted on a trailer for easy transport from place to place.

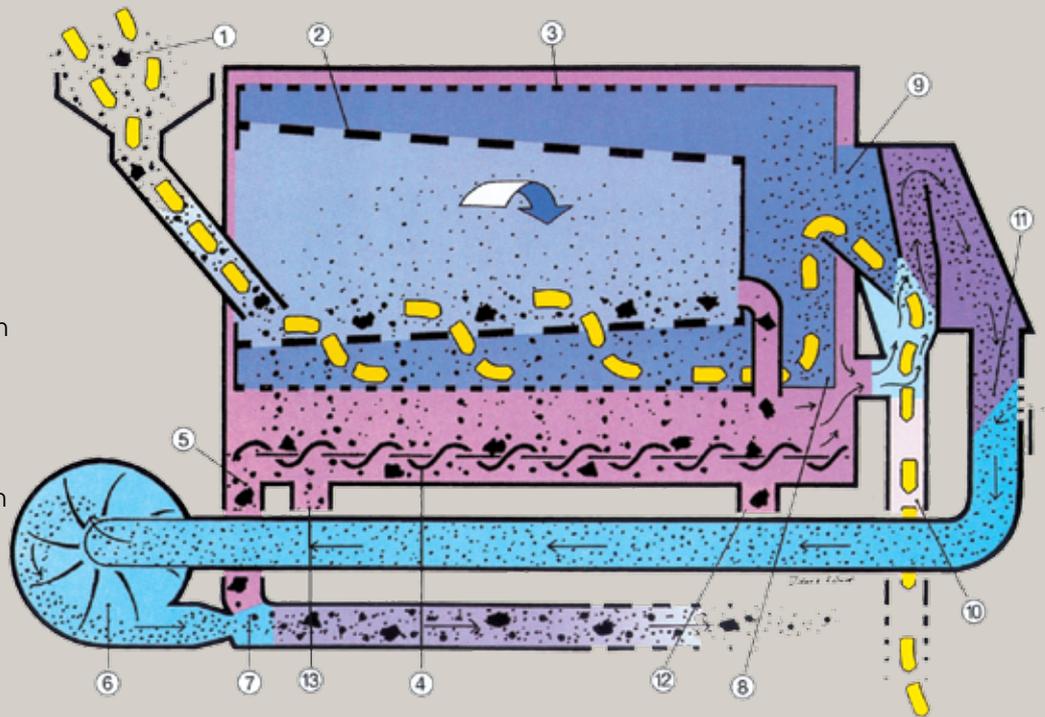
**Accessories:**

- Rain cover for gear motor on drum shaft and panel
- Cleaning brush for outer screens. To be used when cleaning small seeds and size separation to avoid blocking the screens.
- OK 200 pipes and cyclone for conveying the screenings for discharge up to 15m distance from the KDC4000.
- Wide assortment of standard screens for all common crops.



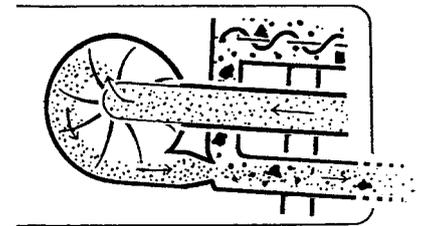
# This is how a KDC 4000 Works

- ① Intake
- ② Inner screen
- ③ Outer screen
- ④ Auger
- ⑤ Screenings outlet
- ⑥ Fan
- ⑦ Venturi
- ⑧ Scoop elevating section
- ⑨ Aspiration chamber
- ⑩ Outlet, cleaned grain
- ⑪ Air bleed
- ⑫ Outlet from inner screen
- ⑬ Outlet for small grain, used e.g. when grading malting barley

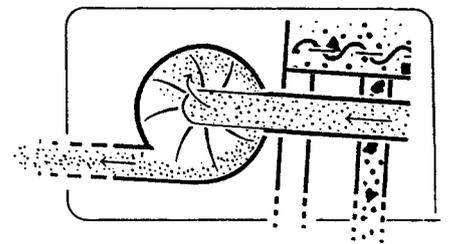


## Mode of Operation

1. Inlet for unclean crop.
2. Inner screen separates the oversize impurities by retaining them. The conical shape of the screen drum slows down the grain, ensuring a good separation of the crop.
3. The outer screen sorts out the small impurities from the desired product, and also small kernels.
4. The screenings from both screen layers are collected in the bottom trough, where the auger conveys the screenings towards the inlet end of the KDC4000.
5. The screenings gathered in the bottom trough are guided into the injector of the blower pipe line for the waste.
6. The blower sucks air and light impurities from the aspiration chamber.
7. Waste can be conveyed for discharge at a desired place.
8. The scoop elevating section lifts the grain into the aspiration chamber.
9. In the aspiration chamber light impurities and dust are removed from the grain by means of air.
10. Outlet for the prime clean product (OK 200).
11. Air regulation for the suction power in the aspiration chamber.
12. Outlet for screenings from the inner drum (large impurities)
13. Small kernels from the outer screen can be collected via this outlet (together with the screenings).



Impurities separated by screens and aspirator discharged into the trash blow line. Impurities separated by screens and aspirator discharged separately.



Impurities separated by screens and aspirator discharged separately.



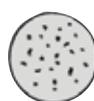
Crop



Large impurities



Small impurities



Light impurities

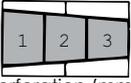
## Aspects influencing the capacity

The capacity of the KCD4000 cleaner depends on, how it is installed and what screens are used:

- Higher inclination of the adjustable legs makes the grain pass faster over the screens. Giving a higher capacity, but reducing the cleaner's efficiency.
- Inner screens with "small" holes provide a better cleaning at a lower capacity.
- Capacity guidelines 40 t/h for pre-cleaning, 5-7 t/h sorting jobs.

# Screen selection for KDC 4000 combi-cleaner

## Inner screen

 Perforation (mm)			Crop							Maize	Sun flower		
			Barley	Malting barley (sep.)	Wheat	Rye	Oats	Rape seed	Peas/ Soya Beans				
1 ø3.5 ø4.3	2 ø3.5 ø4.3	3 ø2.75 ø3.5											
ø5.2 ø7.4	ø5.2 ø7.4	ø4.3 ø5.2			○				○				
ø9 ø11	ø9 ø11	ø7.4 ø9	○ ○	○ ○	○ ○	○ ○	○ ○		○ ○	○ ○		○ ○	○ ○
ø15 ø17	ø15 ø17	ø11 ø15	○			○	○				○ ○		○
ø7													
ø8													

### Choice of screens

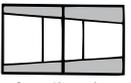
Choice of screens has a high impact on both cleaning capacity and efficiency.

### Inner screens

- The screens chosen determines the capacity for pre-cleaning.
- Small holes provide a better separation of large impurities.
- Large holes give a higher capacity.

- Max. cleaning (reduced capacity).
- Average cleaning (medium capacity).
- Pre-cleaning (high capacity).

## Outer screen

 Perforation (mm)			Crop							Maize	Sun flower		
			Barley	Malting barley (sep.)	Wheat	Rye	Oats	Rape seed	Peas/ Soya Beans				
1.0 x 16.5 1.8 x 20 2.0 x 16.5			○				○						
2.25 x 16.5 2.5 x 16.5 2.65 x 16.5 4.0 x 16.5		○ ○ ○							○ ○			○	
ø2.0 ø3.5 ø4.5	○		○	○	○				○ ○				
ø7.0 ø7.4 ø9.0										□ □ □			
ø2.75 ø5.2 ø6.0	○		○							○ ○			
4,3 x 16,5 4,5 x 16,5									○ ○				

### Outer screens

- For separation, the capacity is determined by the size of the holes of the outer screens.

### Pre-cleaning

- Crop with high content of small and thin grains.
- Standard crop.

### Grading of Malting Barley

- U.K. standard for malting barley.
- Very few "good" grains removed (reduced capacity).
- Standard for malting barley. Oversize holes increases capacity.

### Grading of maize

- Grading.

# Kongskilde Industries A/S



When this year's harvest is in house, it is essential that the crop is handled and stored carefully to preserve its agricultural value. The Kongskilde grain product programme offers farmers equipment that lives up to this and suits both small and large farms.

The Kongskilde grain product programme includes:

- Pneumatic transport
- Mechanical transport
- Cleaning and weighing
- Drying
- Storage
- Complete system solutions
- Measurement equipment and accessories
- Heat sources - oil and gas heaters and electric heaters
- Straw Drying

The solutions are based on pneumatic or mechanical transport, storage in floor stores or steel silos, tunnel or circulation dryers and many other details.

When cold and damp are damaging crops and creating unnecessary costs, Kongskilde mobile heaters can provide heat to overcome the problem easier and cheaper than you would think.

Sensor spheres placed in cereal and seed stores monitor the crops around the clock so the high heat does not damage them, while at the same time achieving efficient drying, traceability, quality assurance, self-monitoring and stock inventory of the crops.

Kongskilde is a company with strong traditions, as well as innovative brands, and is today known for its development of products that contribute to the efficiency of modern agriculture. Kongskilde is known for its special expertise in installations for conveying, drying, storage and cleaning of grain and other crops, and for drying of big bales. In addition, Kongskilde offers a comprehensive range of mobile heat sources for

drying tasks and heating in agriculture, construction and industry. Kongskilde was established in 1949, when mechanisation of agriculture began to be felt in Denmark. The company's first products were cereal blowers, fine harrows and mobile heaters.

These products, which at the time set new standards, still form the basis of much of Kongskilde's business in agricultural implements and grain handling equipment.

Today, Kongskilde has become a "full-line" business in tillage, grass machinery, diet mixers and grain handling facilities. The company is represented with subsidiaries in 13 countries and with manufacturing facilities in five countries.