

# Cimbria Continuous Flow Dryer





*Good product knowledge and process experience mean that today we are ISO 9001 certified.*

*A full-size test plant for further development and tests.*

*Research results are collected in a book "Grain Drying", which has found wide recognition.*

Based on our extensive knowledge of drying, and our vast experience, together with constant development and optimisation, Cimbria are now leaders within the area of process-drying of grains and our drying plants are the most effective in the World.

At Cimbria it has never been enough to test the ideas in artificial surroundings. Therefore we have a full size test plant where all our ideas are carefully tested before they are sent out to our customers. Therefore we can ensure that you have the dryer to best meet your requirements.

Cimbria have been around since the need for artificial drying first arose. One of the founders at Cimbria, H. Toftdahl Olesen, started comprehensive research to establish the fundamental parameters for efficient technology and to develop the perfect utilisation of the supplied drying energy.

## What We Call "Grain Care" Means For You:

### Full Control Over The Drying Process

Development, research and experience within the drying fields, has resulted in Cimbria having obtained full control over the air volumes, temperatures and rates of passage. Thereby we obtain the optimal capacity and economical drying in terms of energy and taking account of the surrounding environment.

### Homogeneous Economic Drying

The direction of the air through the grain decides how effective and homogenous the grain is dried. In a Cimbria dryer the grain moves through a changing airflow called mixed-flow drying. With this system the water has time to move from the inside of the kernels to the outside. Thereby it is possible to obtain homogenous and economic drying.

### Guaranty For The Capacity

We carefully calculate each dryer on our simulation programme which ensures that the dryer meets your requirements. Furthermore, we offer professional counselling ensuring that you get the best possible service.

### Flexibility

From our standard components the dryer can be tailored to meet your specific demands.

This reduces the delivery time as well as the installation time. If your drying demand increases in the future it is possible, due to the modular design of the dryer, to easily increase the size of the unit.

### Concerns About The Environment

Concerns about the environment are very important to Cimbria. Both in connection with the production but also the surrounding environment where the plant is going to work. Therefore we offer dust separation, silencer, indirect furnaces etc. At all times we are working to be at the front in the field of environmental demands wherever in the World the plant is to be installed.

### Good Service

To each of our dealers there is connected a service organisation which ensures that you always have access to professional assistance.

### Total Economy

These advantages ensure you a totally economic unit, giving a faster return on your investment through a higher floor-space ratio, less waste and a better quality in the end-product. All this means a higher earning and improved total economy despite an apparently higher initial investment.





## World-Wide Experience

Cimbria have great experience in drying and conditioning of numerous products world-wide. A Cimbria dryer is a safe investment for you, as you have the possibility to dry different grains in the plant.



*Wheat*



*Soya beans*



*Maize*



*Sun flower*



*Coffee*



*Raw rice*



*Rape seed*

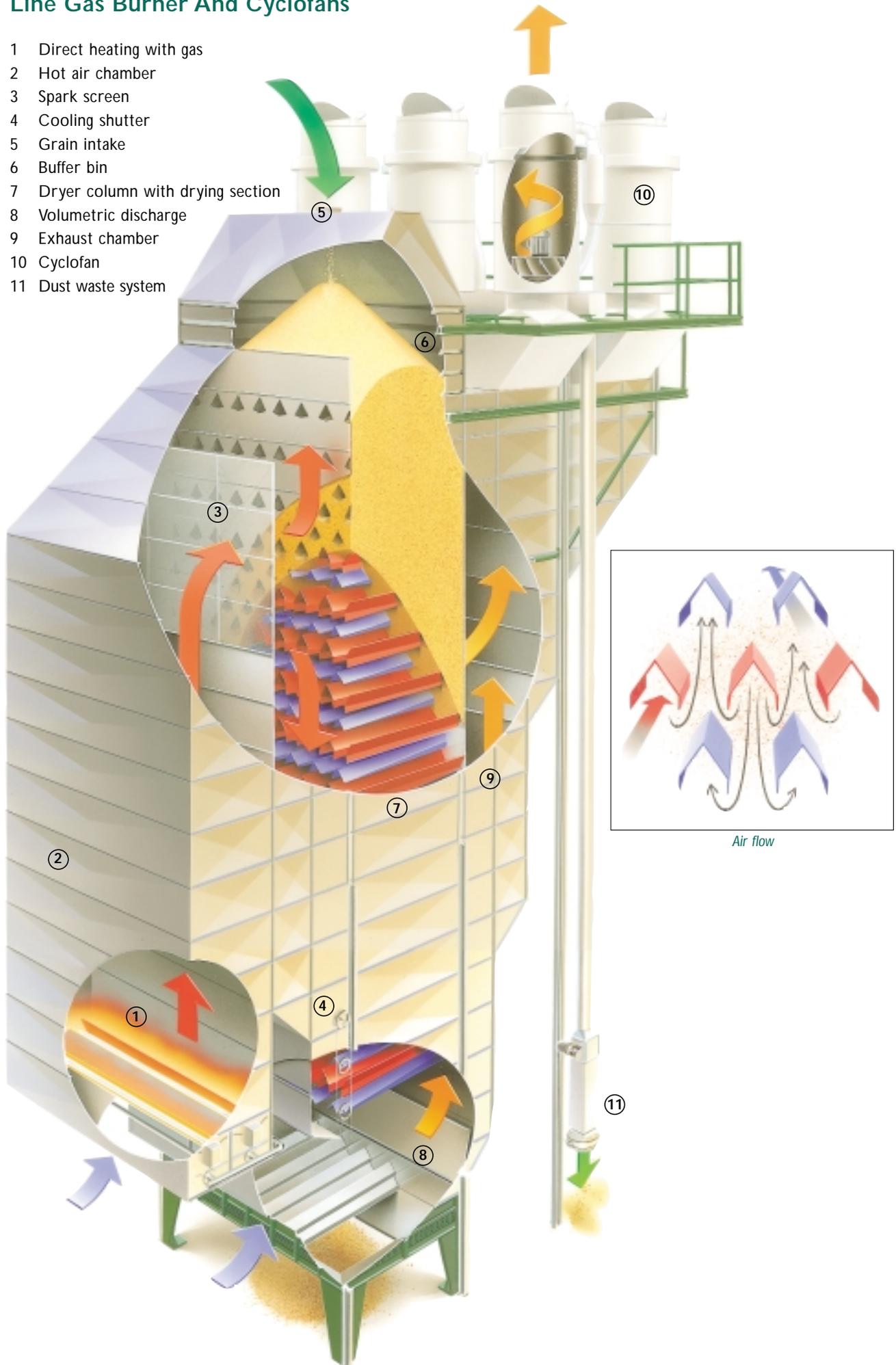
- Wheat
- Rye
- Oat
- Barley
- Malt
- Rape seed
- Rybs
- Peas
- Maize
- Sunflower
- Soya beans
- Rice
- Paddy
- Parboiled paddy
- Cocoa beans
- Peanuts
- Cat gravel
- Free Flowing granulate
- Process preparation

We offer counselling and design of plants for all sorts of drying purposes and various products based on research achievements and many years practical experience.



## Graphic Illustration Of An A-Dryer With Line Gas Burner And Cyclofans

- 1 Direct heating with gas
- 2 Hot air chamber
- 3 Spark screen
- 4 Cooling shutter
- 5 Grain intake
- 6 Buffer bin
- 7 Dryer column with drying section
- 8 Volumetric discharge
- 9 Exhaust chamber
- 10 Cyclofan
- 11 Dust waste system

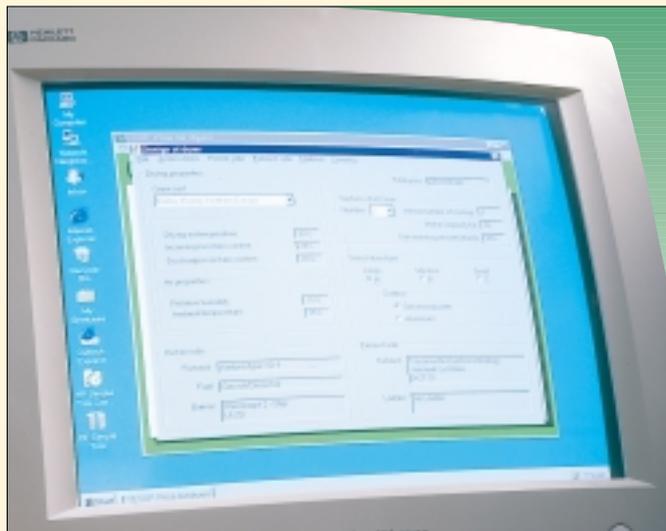


## Material

Cimbria dryers consist of 2-mm galvanised steel or aluminium plates, which ensures a good strong quality. Both types of plate make it possible to install the dryer inside as well as outside. With the latter mentioned you cut down the building costs and the total investment will be considerably reduced.

## Long Life

A good and solid material ensures you that the dryer has a long life and minimal maintenance.



## Simulation Programme

Cimbria use a PC drying simulation programme with which the dimension and design of the dryer can be calculated to meet your specific requirements.

We keep our promises and guarantee you the calculated capacity.

**Tailored To Meet Your Demands**

## Control Panel

The drying process is controlled and monitored through a simple, clear and user-friendly control panel with a mimic diagram and built-in safety functions.

## User-Friendly Operation

The dryer can furthermore be equipped with an over-heat-alarm system and a moisture control system called "Auto Pilot".



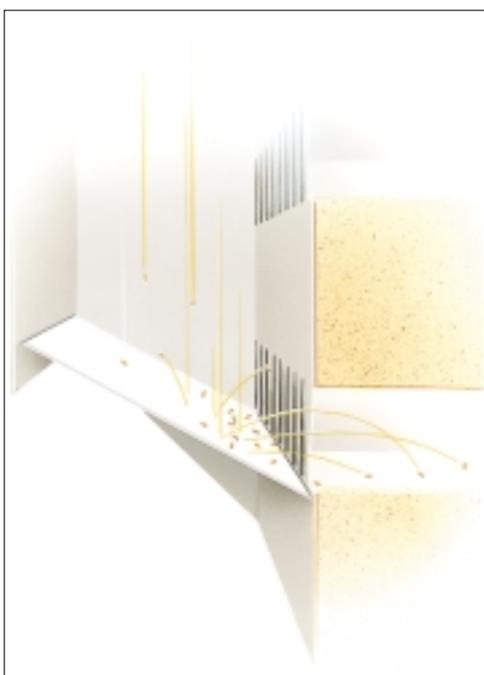


## Modular Design

The dryer is built in three modules: A, B and C. With this system it is possible to meet your drying requirements.

## Future Secured

Each model: A, B and C is built of modules. If your drying requirements increase you can expand it with more modules.



## "Jumping Kernels"

When the dryer column is filled a few kernels may jump out of the dryer column. Both the heating and exhaust chamber are inclined so the "jumping kernels" are fed back into the dryer column.

There is no waste of kernels, because everything other than the dust and water is automatically fed back into the dryer column again.

## Column Without Loss

## Volumetric Discharge Section

Cimbria volumetric discharge section is designed with a series of sector dampers. This discharge system gives a homogenous flow and helps reduce clogging by straw and foreign material.

## Homogeneous Grain Flow

It gives you full control over the drying process.

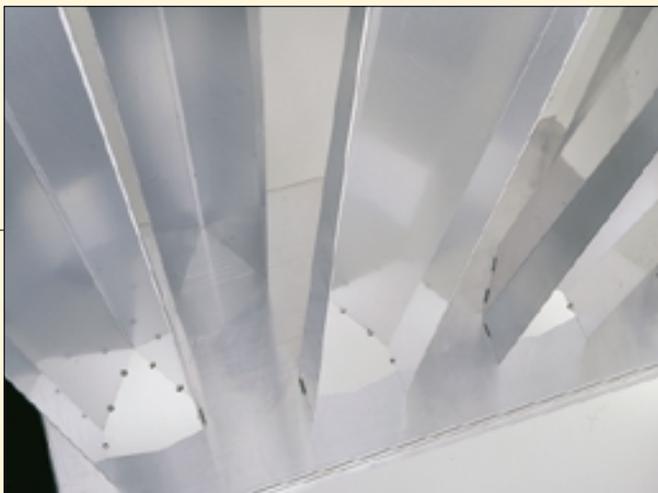


## Air Ducts

Cimbria's V-formed, sharpened air ducts give more space for the grain and an optimal air-flow through the dryer.

## Homogeneous Airspeed

The air is distributed over the entire column so each sucking channel is surrounded by four exhaustion channels and vice versa. The mixed-flow principle ensures a gentle, effective and homogeneous drying.



## Air Foils

In the opening of the exhaust channels air foils can be placed to minimise turbulence and avoid small grains and light products from being sucked out by the exhaust fans.

It is possible to use larger air volumes, which results in a considerable increase in the drying capacity.

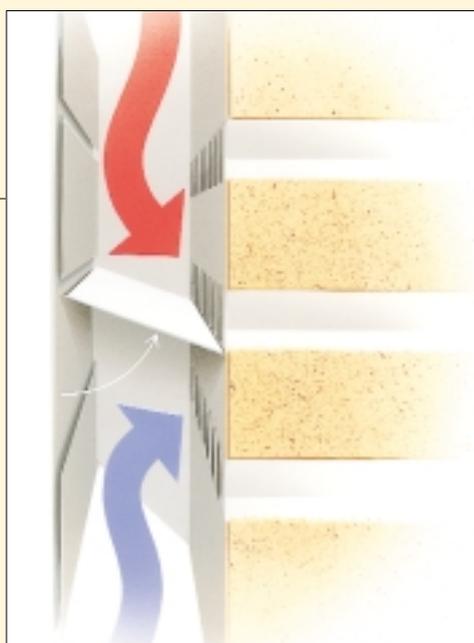
**Large Air Volume  
For Small Grains  
And Light Products**

## Variable Cooling Zone

The variable cooling zone makes it possible to configure the dryer to the exact drying- and working conditions in the drying moment.

## Optimal Capacity And Minimal Drying Costs

By utilising air and energy in the best way possible the costs are reduced and the capacity is optimised.



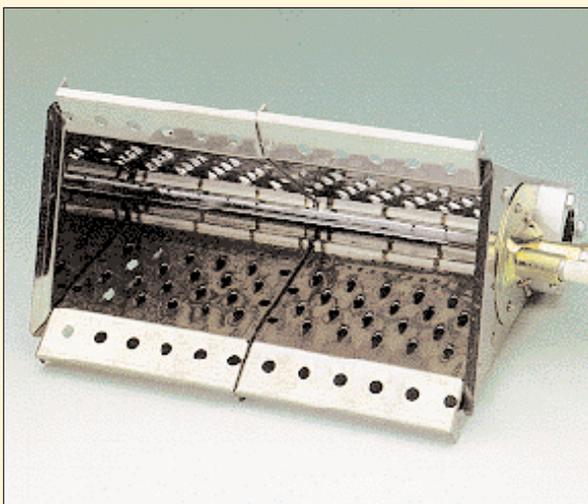


## Direct Heating

With the direct heating system the energy is optimally utilised. The flue gas is conducted through the dryer and there is no loss in the chimney.

### No Thermal Loss

Direct heating is energy saving and most often used in the drying of fodder.



## Direct Heating With Gas

Cimbria's line gas burner gives a homogeneous temperature by means of a burner full over the width of the dryer.

The direct heating with gas ensures a clean and energy saving drying of a high capacity.

### Optimal Control Of The Drying Air

## Direct Heating With Oil

Cimbria's hot air furnace is delivered complete with an air mixing system which gives a homogenous drying air temperature. The fire chamber is in stainless steel and the furnaces are delivered with a very reliable burner for oil.

### Homogenous Drying Air Temperature

Cimbria's combined mixing system ensures a completely homogeneous drying.



## Indirect Heating

The flue gas is heat exchanged and the heat source is never in direct contact with the product to be dried. The fire chamber is in stainless steel and the furnaces can be used for gas or oil.

## Future Secured Environmental Investment

This is a recommendable heat source when the final product is for human consumption.



## Indirect Heating With Water Or Steam

The radiators are mounted directly on to the heat air chamber. A steady distribution of the heat is thereby obtained.

The advantage with this system is that it can be used for utilising excess heat and it is also recommended for drying of consumer crops.

## Lenient Heating

## Recovery Of Heat

The heat from the lower part of the column, where the humidity is lower, can be recirculated and contribute to the heating of the drying air.

## Energy Saving

The heat contents in the recirculated air can contribute with up to 20% energy saving.





## Environment

The Cimbria dryer design incorporates the principle of air sucking through the grain putting the dryer body under negative pressure eliminating emission of grain dust and thermal loss from the column. By means of Cimbria's noise attenuation system the local demands on noise emission can be met efficiently.

### No Dust No Thermal Loss

Cimbria dryers give you a pleasant immediate environment operation and economy without dust emission or heat loss.



## Air Control "Varifan"

Cimbria's varifan is installed on all our ventilators and gives the possibility for stepless adjustment of the air volume and proportionally a reduction in the energy consumption.

The varifan gives you an optimal utilisation of the ventilators and ensures you an economic profit while the energy consumption fits to the capacity at all times.

### Reduced Energy Consumption

## Super Cyclofan

Cimbria's Super Cyclofan is developed especially with a view to minimise the dust leak even more. It has an unusually high dust separating efficiency of more than 99% with the best energy utilisation.

### 99% Dust Separation

Cimbria have patented the most effective mechanical dust separation ventilator. The effective dust separation gives you a secure environmental advantage.



## Cyclofan

The Cyclofan is a combination of a ventilator and a high-effective centrifugal separator. It is very easy to install, it is space saving and results from "Biotechnological Institute" shows that it has a dust separating efficiency of more than 98%.

### High Effective Dust Separating

Cimbria cyclofan ensures you a better separation than other dust separating fans with the same energy consumption.



## Axifan

The Axifan has a large air output combined with an efficient dust separation of heavy dust grains with an efficiency at almost 84%. The relatively low revolutions result in a lower noise level.

This dust separation system is the most simple form of mechanical dust separation distinguished by a low kW consumption.

### Low kW Consumption

## Axial Fans

Cimbria's axial fan is a simple exhaust fan with the possibility for regulation of the exhausted air volume with minimal energy consumption.

### Optimal Air Volume

By setting the air volume regulator you obtain an optimal air volume and thereby save energy.





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