

# MACHINE AND PLANT CONSTRUCTION FOR COFFEE PROCESSING





## COFFEE IS OUR LIFE

*For more than 40 years Neuhaus Neotec have built roasting machines and roasting plants for small, medium-sized and large coffee roasters world-wide. With our roasting process we have set new standards in the coffee industry. As suppliers for small and large roasting facilities world-wide, Neuhaus Neotec see themselves as a reliable and flexible partner of these companies, since their plant design stands for high quality, low energy consumption and environmentally friendly technologies.*

*We have a leading position worldwide not only in coffee roasting, but also in green coffee intake and processing. In Bremen and Hamburg alone, our plants are being used for processing more than 1.5 million tons of green coffee per year.*

*Our company gives high priority to research and development. Our spacious pilot plant in Ganderkesee with its latest technology is at your disposal for testing products and plants or for training purposes. Neuhaus Neotec stands for competence in coffee, precision and reliability.*

Sincerely yours



Gustav Lührs  
Managing director  
NEUHAUS NEOTEC

## NEUHAUS NEOTEC SUPPLY COMPLETE PLANTS FOR THE COFFEE INDUSTRY. TURN KEY.

Machines and plants for the coffee industry. Turnkey green coffee treatment plants, green coffee silos. Complete large-scale roasting plants as well as roasting systems. Optimum and intelligent solutions have made Neuhaus Neotec a recognized partner all over the world. Our range of services includes: design, planning, projecting, fabrication, assembly, commissioning, maintenance, and service.

*All from one source.*



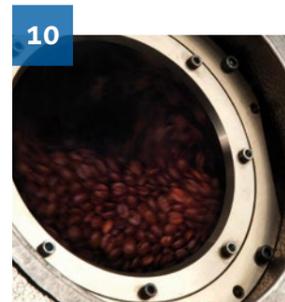
### GREEN COFFEE HANDLING

Neuhaus Neotec with its long standing experience is the company to be contacted for green coffee intake and storage!



### COMPETENCE IN CONVEYING

Whether green, roasted or ground coffee is involved – our experience in coffee transport is unique. We offer mechanical and pneumatic conveying units of any capacity range; please contact us for further information.



### ROASTERS

From flexible RFB system to traditional drum roasting – we offer a wide range of roasters for different capacity ranges and profiles of requirement.



### ROASTER OPTIONS

Increase energy efficiency and performance of your roaster by preheating green coffee or optimise your roasting results by our copy and profile roasting.



### ROLL GRINDERS

Our roll grinders cover all capacity ranges as well as special requirements such as pad / capsule grinding or ultra fine grinding.



### PILOT PLANT / QUALITY CONTROL

Our pilot plant is at your disposal for testing our complete roasting and grinding technology. In addition we offer a wide range of different laboratory equipment.



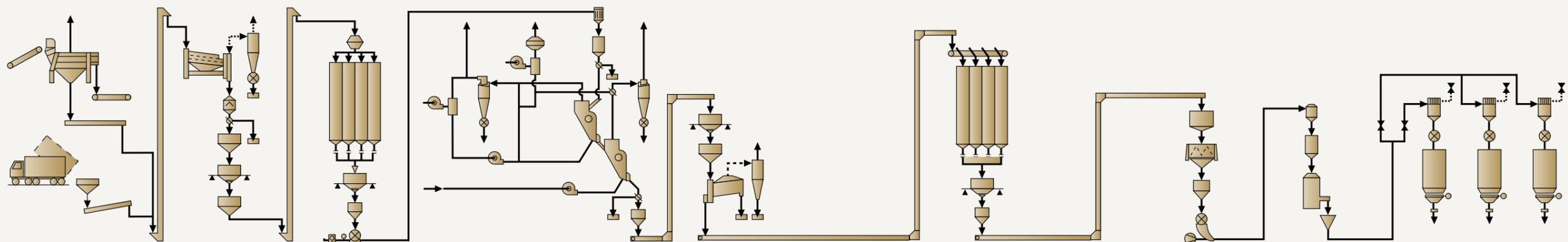
### SERVICE / CONTROL

Neuhaus Neotec offer the complete range of services from hotline to training. Our customised plant control systems are an essential part of our delivery programme.



### REFERENCES

The long list of our references includes nearly all the major coffee roasters and green coffee service centres.



## INTAKE AND CONDITIONING FROM BAG OR CONTAINER

Several intake facilities are available for bulk products shipped in containers, for bagged goods on pallets or in containers and for big bags. For bag intake in service centres Neuhaus Neotec offer stationary or mobile intake lines with a hydraulic tilting device. Containers are emptied via a special hydraulically operated wide belt conveyor. Via the conveyor belt line which follows the bags are either transported to the palletizing unit or to the bag emptying machine; they can also pass an intermediate check weigher. The total capacity of a bag intake unit is about 800 bags/h. The empty bags can be disposed of by a bale press, a press container or otherwise.

For the intake of green coffee shipped as bulk Neuhaus Neotec offer intake facilities for bulk products having a capacity per hour of 20 to 120 tons. Intake facilities for pre-cleaned coffee delivered for example in big bags or as bulk product by silo trucks are also part of our delivery program. A powerful aspiration system will ensure compliance with workplace regulations and the applicable environmental guidelines. We are the appropriate contact from low capacities for medium-sized roasters to large service centres.

## SECTIONAL STEEL SILOS

Silo cells from sectional steel are used for storing bulk products; these silos will be assembled from prefabricated parts on site. Unlimited flexibility as to their capacity, number of cells and dimensions is ensured. This design has proven itself from low to very high capacities.

## CONDITIONING

From cleaning, sorting, mixing to hydrothermal processing of green coffee Neuhaus Neotec cover the entire range of green coffee conditioning.

## GREEN COFFEE CENTRES ALL OVER THE WORLD

Neuhaus Neotec is one of the leading suppliers of green coffee processing and silo plants. In almost every big European port in which coffee is handled one or several of our processing plants is/are in operation.



### GREEN COFFEE TRANSPORT

From small to high capacities, from short to long distances and lifting heights – Neuhaus Neotec offer the corresponding conveying unit for each request. Specifically classified transport of green coffee is of utmost importance when designing conveying units for avoiding mixing of conventional and organic products or Decaf. For mechanical transport of green coffee we recommend chain conveyors, elevators and conveying belts with a capacity of 10 to 120 t/h.

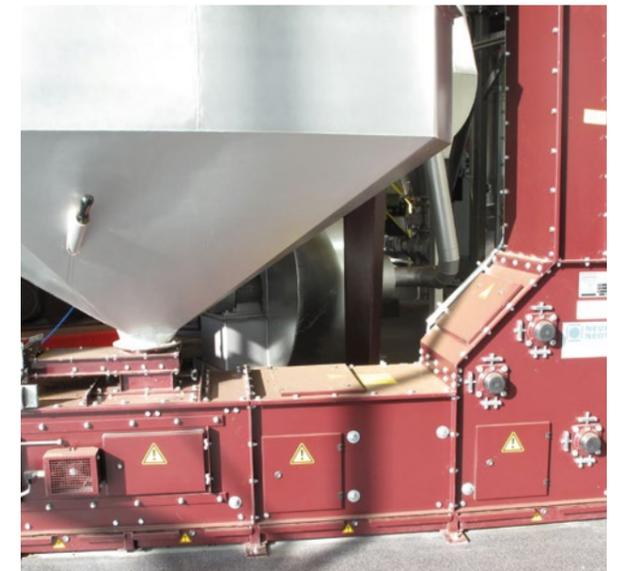
As an alternative pneumatic conveying systems having capacities from 10 to 60 t/h are used which offer more flexibility with regard to their layout and are therefore suited for modernization and retrofits.

### ROASTED COFFEE TRANSPORT

Roasted coffee is a very brittle product with high fracture risk. For this product Neuhaus Neotec provide careful transport by bucket elevators or conveying belts having capacities of up to 14 t/h. We offer closed conveying units for protecting the delicate aroma of roasted coffee. On request our conveying units can also be provided with systems for external gas introduction. Traditional pneumatic conveying units are used, but also pneumatic slow motion transport or timed push transport with conveying air duct is possible.

### GROUND COFFEE TRANSPORT

Flavour protection is the most important issue of ground coffee transport. Grain size distribution and bulk density must not be altered or affected during transport. The best possible systems to satisfy these demands are our suction-pulse conveying systems which are of completely closed construction and which have capacities ranging from 3 to 6 t/h; this transport system by Neuhaus Neotec ensures utmost flavour protection. This airtight system allows transport at low speeds. The simple and uncomplicated technology makes handling and cleaning easy. Complete emptying of product guarantees identity and purity. Neuhaus Neotec still use mechanical conveying systems which excel by their simplicity and robustness and which offer an economic alternative for many fields of application. For these fields of application, Neuhaus Neotec have supplied their proven pipe chain conveyors and rope conveyors of different capacities for over 30 years.



### RFB BATCH ROASTER

Our unique roasting process is especially suited for customers who want to meet the increasing demand for product variety and thus correspond to the market demand. With the RFB roaster any coffee blend can be roasted, from the very bright Nordic roasting degree to very dark southern espresso roasting. The vast range of batch sizes as well as of adjustable roasting air volume flow and temperature which are at disposal allow to adjust roasting time and roasting degree as needed. Special features of the RFB: The geometrical execution of the roaster and the cooler is identical. Coffee is kept in a rotating movement by the specially designed form of the chambers and by defined air supply. This causes a very good mixing of the batch without mechanical stress or movable elements. RFB roasting plants are available for capacity ranges from 500 kg/h to 5.000 kg/h (by use of pre-heating).

### SPECIALITY ROASTER RG

Developed on the basis of the successful RFB series, the RG has been designed for lower capacity ranges from 300 to 1.500 kg/h, i.e. for roasting coffee specialities. The RG combines the best product quality with flexibility, is easy to operate and offers a high degree of reliability. Both conventional as well as short-time roasting are possible. The roaster is operated with an energy-saving recirculation system. The roasted product is cooled in a special fluidised bed cooler. If necessary water can be added for pre-cooling. A major advantage of this system is its compact design.

### DRUM ROASTER

The Neuhaus Neotec delivery programme also includes the drum roaster CTR. This is our customised roaster for longer roasting times and traditional roasting. The market for coffee specialities demands traditional roasting concepts. For these demands Neuhaus Neotec have developed a roaster that uses innovative solutions in the traditional way. Neuhaus Neotec's long-standing experience in the construction of roasters has created a highly developed and user-friendly machine with sophisticated security technology and advanced energy concept. The CTR offers capacities of 1.5 to 3 tons per hour.

It has a modern control system, can also be supplied with profile roasting, and offers innovative technical solutions which are unique on the market. Coffee roasters who prefer a drum roaster can continue to purchase complete lines from Neuhaus Neotec.

### RFB JUNIOR / SHOP ROASTER

Neuhaus Neotec also offer the optimum roaster for small capacities. The RFB Junior with a capacity of up to 80 kg/h and our shop roaster (10 kg/h) are popular with our customers, as they offer automatic roasting combined with high flexibility and the best roasting quality.



### PREHEATING

Coffee roasting requires a certain thermal energy which is introduced into the beans – depending on machine type and conditions – by thermodynamic methods such as heat conduction, thermal convection and heat radiation. Depending on the individual roasting machine and the thermodynamic method used, an exhaust air temperature of 250 to 450 °C results which depends on the roasting process and the exhaust gas cleaning system. This energy can be recovered by preheating the coffee immediately before roasting is started. Neuhaus Neotec offers two different processes for this purpose:

Preheating of the green coffee batch by ambient air which has been heated by exhaust air energy via heat exchanger or – as alternative – direct preheating of the green coffee batch by exhaust air.

These different methods will

1. reduce energy costs by up to 25%
2. reduce CO2 emissions by up to 25%
3. increase the capacity of the machine (up to 20% and even more under certain conditions)

Additional energy recovery by preheating the combustion air is also possible.

### PROFILE ROASTING

Constant quality by more control. Whoever wants to improve the quality of his coffee and above all keep it constant, cannot avoid developing roasting profiles of the individual provenances (or blends) in the long run. To develop their special aromas, the green coffees need an optimised roasting process that has been adapted especially to the respective coffee. After all, the aroma of the beans is influenced not only by the degree of roast and the roasting time but also by the duration of the heat introduction into the beans. Only if these parameters perfectly match, the coffees can develop their individual taste. This is not only possible during one roasting process but is reproducible for every further roasting.

Up to 21 different values – for temperature/air quantity and moment – can be set for each roasting profile. These values are stored in the control system and can be recalled at any time for further batches of the respective coffee. The programme automatically and exactly controls the roasting process by means of the defined values.

Neuhaus Neotec profile roasting is particularly suitable for longer roasting times, for espresso and café crema roastings. Here, the temperature profiles during the roasting process have a decisive influence on the aroma.

### COPY ROASTING

Being a raw product, coffee is subject to natural fluctuations – varying bean moisture, varying storage time and temperature, differences in bulk density to name but a few. These variations influence the roasting process and thus may cause fluctuations in the quality of the roasted coffee. In order to compensate these product variations, Neuhaus Neotec has developed the copy roasting programme, a control instrument perfectly suited to avoid quality variations.

The programme consists of an intelligent algorithm which measures possible deviations from the ideal roasting profile at intervals of five seconds and compensates them automatically by corresponding temperature/air quantity adjustments. Thus disturbances in the green coffee and the resulting variations in the roasting profile can be made up for. The copy roasting programme is an ideal control instrument for achieving a constant product quality in spite of quality variations in the input product. Especially the roasters of the Neuhaus Neotec RFB series are ideally suited for this type of roasting control as the small amount of stored heat capacity allows a very quick adaptation of the heat quantity.



## ROLL GRINDERS

Apart from green coffee and the roasting process, coffee grinding is of great importance for the cup quality. Filter, espresso or superfine – a grinder has to be flexible enough to meet any demand. Different grinding degrees as well as a uniform particle size distribution have to be achieved rapidly and exactly. A precisely reproducible grinding gap and high compacting rates are expected as well as long service lives and low maintenance costs. The Neuhaus Neotec roll grinders meet all these demands. Our coffee grinders are divided into different product series which cover every single demand.

## WMK SERIES

These grinders have been especially designed for larger capacities and high performance. Depending on the grinding degree such as grinding for instant, filter coffee or espresso, the roll grinders are designed for single, two or multi-step operation. A central drive unit operates two grinding steps. A high-performance compactor increases bulk density and crushes chaff.

## WMS SERIES AND NEOGRIND

These grinders have been especially designed for small and medium capacities. They are available in dust-tight design as single, two or three-step unit with central or individual drive. Due to their compact and robust construction and easy maintenance these grinders are a very attractive option for medium-sized coffee roasters.

The WMS-E version with individual drive and separate frequency converter is the optimum machine for specific grinding ranges such as pad/pod/capsule grinding.

NEOGRIND has now been designed as a further and new development. Due to its modular construction for 2 or 3 grinds, up to 2,500 kg per hour are possible. The new NEOGRIND scores not only with performance, but also with tangible design advantages. It offers a completely accessible grinding chamber with an internal continuous smooth surface made of stainless steel. Besides, there are no losable parts in the interior. A new guide plate technology and a technically gas-tight grinding chamber minimise potential coffee adhesions and thus quality variations.

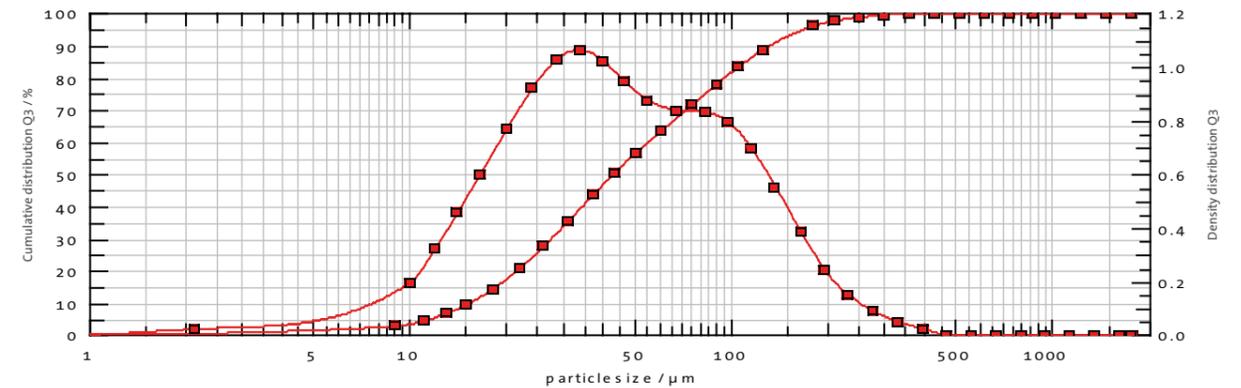
Our latest grinder technology for highest product requirements always produces a uniform and homogeneous ground product – even under changing loads. All parameters can be stored as a recipe for quick adjustment at product change.

## ULTRAFINE GRINDING

Especially for ultrafine grinding Neuhaus Neotec have many options available to fulfil the special demands of this product. We, for example, provide highly cooled grinding, a sophisticated temperature control system and a special scraper system for ensuring highest product quality with particle sizes of 50 to 125 microns.

## LWM SERIES

The LWM 100 is particularly suitable for use in laboratories, for quality control or small-scale production. With its highly flexible control system, it is the ideal device for your product optimization. It allows to define all operational data for the desired reproducible grinding result. The LWM 100 is the optimum machine in the field of low-dust crushing with a narrow particle size distribution and complies with the highest demands.



**PILOT PLANT**

Our pilot plant, which is equipped with laboratory and pilot-scale roasting machines, enables research to be carried out on the influence of different roasting conditions on coffee quality. The effects of phase, profile and copy roasting as well as preliminary roasting and pre-drying processes can be tested. Different pilot plant and laboratory roll mills and compactors allow for an optimisation of grinding for filter, espresso, and extract coffee. The optimum machine design with respect to the customer's individual requirements can be defined already during the tests. Experienced engineers and coffee specialists will assist you with the tests.

Our customers can find out about the complete range of possible roasting conditions, such as temperature, air quantity or the influence of slow and fast roasting on the processing of the coffee.

**QUALITY CONTROL**

Neuhaus Neotec offer a comprehensive range of laboratory equipment, from laboratory scale roaster over colour testers to laboratory grinder and bulk density control system.

**RFB 5**

The sample roaster for highest demands and larger sample sizes. Unique in its possibilities. The RFB 5 has a separate roasting and cooling unit. Self-defined recipes can be exactly reproduced and the operator is perfectly free to select roasting parameters and air quantities which are of utmost importance when developing new products.

**COLORTEST 2**

For decades already our Colortest has been well established on the market as it is easy to operate and requires no maintenance, facts which have convinced our customers.

**COLORCONTROL 2**

Our colour measuring system for continuous online colour measuring for roasted coffee beans and ground coffee; also available with moisture measuring system.

**LABORATORY GRINDER LWM 100**

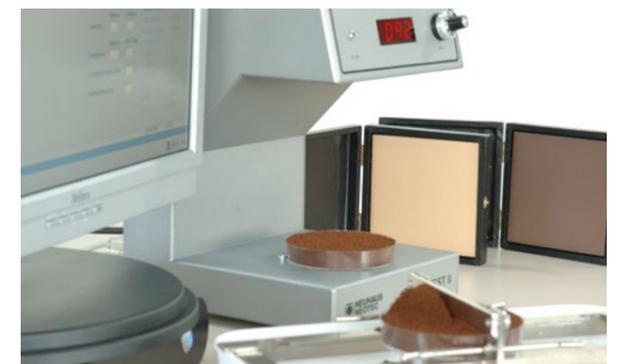
Our laboratory grinder has been developed for variable grinding tests. Thanks to the individual drive of each roller and a quick change device for the rollers different configurations can be tested within a short time. The LWM can also be used as production machine.

**LABORATORY GRINDER FOR SMALLEST QUANTITIES**

For smallest quantities and for preparing samples.

**DENSECONTROL**

The device is used for product withdrawal and weighing of a defined volume in the running process. The resulting bulk density can be used to control and regulate the upstream processes. Also available including colour and moisture measuring unit.



**SERVICES. INTERNATIONAL.**

Neuhaus Neotec offers the whole range of services which a turn-key supplier is expected to deliver nowadays. Initially there are our customers' high demands on a new machine or plant. Following an intensive exchange of ideas leads to a correct plant design, a perfect production with intermediate adjustments, delivery, assembly and finally commissioning of the plant. Modern means of communication and our service and spare parts department ensure fast support, if required. Worldwide service is furthermore guaranteed by our group of companies with a network of traders in more than 50 countries all over the world.

Our services comprise:

- Hotline support
- Fast availability of services and spare parts
- Product development
- Training

**PLANT CONTROL SYSTEMS**

As a manufacturer of turn-key systems Neuhaus Neotec offer of course complete plant control systems including visualisation as well as a coffee specific order control system for fully automatic production. All functions will be individually adapted to the capacities and demands of the customers' plants. All over the world our customers will benefit from high user-friendly operation and our fast and uncomplicated service.

**WORLDWIDE REFERENCES.**

Coffee is Our Life. Neuhaus Neotec have worked for the coffee industry for more than 40 years. Many roasting companies and green coffee traders worldwide have opted for a user-friendly plant by Neuhaus Neotec.

Renowned coffee brands range among our customers worldwide:

- Aldi
- Allpress
- Cothas
- Delta Cafés
- Doutor Coffee
- Drie Mollen
- Dupuy
- Fichaux
- Finlays
- Folgers
- Ind. Aliadas
- Kraft Foods
- Lavazza
- Marvelo
- Masteroast
- Naatie
- Nandi
- Nestlé
- Neumann Group
- Segafredo Group
- Spar
- Strauss Elite
- Tata
- Tchibo
- Trung Nguyen
- United Coffee
- Waldico
- and many more

