

## ALL TOPICS AT A GLANCE:

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- We optimize your lab
- Whether red, whether black, whether brown...
- AVA stands for quality - worldwide

## More space for Expansion



After a construction period of only 6 months AVA just now moved into the new building in the industrial area of Herrsching, Bavaria. The modern, energy efficient wooden system of construction made this short building period possible. The specialist for industrial mixing and drying technology had to invest in this property because of the increasing staff and the continuing success of the company AVA.

In one of the both wings the office space is located, in the other the technical area, that now enables the separate presentation of horizontal and vertical technology. The interested customer can watch life-demonstration of mixing and drying tests through the installed webcams. Through this expansion AVA as well initiates the development of the future and is present for new challenges. The target is the further enlargement of the delivery range apart standard designs, to get even more individual solutions for customer specific applications.

## Please ask for our new AVA Main Brochure

**AVA**  
FOR TURBULENT ACTION

**Mixers.  
Dryers.  
Innovative Solutions.**

## Special floorings for more safety on children's playgrounds



For the market leader in rubber floorings and insulating materials made from rubber, AVA has supplied the heart of the new production line, a horizontal batch mixer. The big challenge was to mix rubber granules with binding agents. Alongside an excellent dispersing of the binding agent and the homogeneity of the mixed product, a complete discharging and a good cleanability of the machine is of special interest for the end user. AVA developed a special discharging flap and a special interior coating of the mixing drum to achieve the cleanability and an almost residue free discharging. Additionally AVA managed to deliver, assemble and start-up the complete production line within the short schedule to our customer's complete satisfaction.

## Drying of PVC sludge



For drying of different kind of waste sludge from Flexible-PVC-Floorings and awnings AVA Horizontal Dryers for either batch operation or continuous operation are well proven in the market. The rugged design and high efficient heat transfer from the jacketed and heated vessel wall into the product is the main feature for this type of dryer. All sealings have to be designed for high vacuum to achieve short drying times at reasonable temperatures which do not damage the product. When designing this special dryer for PVC sludge we gave special attention to the fact that solvents and plasticizers are ingredients of the waste sludge. All materials have to be resistant against different solvents as well as different kind of plasticizers under temperatures of more than 100°C. Finally our customer got a custom-made dryer for it's application and AVA proofed again its ability as "problem-solver". Now they recycle the dried PVC and re-use the solvent/plasticizers in their process.

## Buy American at AVA Americas, LLC



AVA Americas, LLC, located in Charlotte, NC, is the independent US sister company of the global acting AVA - Huep GmbH in Germany.

One of our core strategies is the combination of German quality engineering with local manufacturing in the USA. With this philosophy we fulfil the wishes and needs of our customers at best.

The machines for your process are designed by German engineering and fabricated in the USA by proven and well known partner companies. With this strategy we offer the best possible machine technology for our customers in the USA and we support the US economy.

## A new option for high-temperature treatment of solids



The recently developed AVA horizontal drum reactors for high temperature treatment are an innovative solution for domains, previously reserved to rotary kilns, fixed-bed and fluidized-bed reactors.

High temperature treatment of solids is an application, which is becoming increasingly important for the chemical industry. Solid-gas reactions, low-temperature gasification and calcination are typical examples for such processes. The AVA system is an effective alternative to the existing technology. It offers an improved performance, due to the ability to combine different process steps, such as mixing, drying, high-temperature treatment and cooling in one single machine. Other advantages are the wide range of machine sizes (11 up to 30m<sup>3</sup>), the wide range of operation temperatures (0-800°C) and pressures (vacuum - 40 bar). The machines proved in operation an increased throughput and a higher product quality.

## GMP Production plant



The production according GMP design is an increasingly important task in the food and pharmaceutical industry. AVA delivered recently a complete plant for the production of additives. The task was the design of two production lines. The first one consists the process steps of reaction, filtration and finally drying of the ingredients, the second one the homogenisation of different product batches.

The AVA equipment consists of versatile vertical, conical mixers and dryers, especially designed for the needs of the food and pharma industry. GMP design and the conformity with FDA regulations, the complete discharge, the gentle mixing and the good cleanability made the AVA system distinguished for that task.

## Easy Handling Laboratory Dryer



Not only in production plants but also in laboratories the operators are much concerned about Easy-Handling. AVA developed a new Horizontal Batch-Dryer as stand-alone unit with revolvable drying chamber. The charging and discharging of the dryer is done via one socket. During the drying phase this socket is the filter socket, where a vapour filter via clamp connections is installed. After drying phase the vapour socket is disconnected. The filter element will be cleaned and the dryer is discharged via the now called discharging socket (former feeding and filter socket). The AVA Dryer series Type HTLVT is available in size of 3, 5, 10, 20 and 30 litres. One base unit is used for all dryer sizes. Only the mixing elements and the dryer drum has to be exchanged to get a "new dryer" with different volume. AVA recently supplied this dryer type to Korea's largest chemical producer for developing of the products and introduction of a new drying technology.

## Flexible GMP Dryer - Reactor for API



Machines for the pharmaceutical industry nowadays have to be designed for multi-purpose operation. For the design of Vertical Dryers in general the wet cakes to be handled may come from different mechanical dewatering systems such as a centrifuge, a nutsche filter or from another kind of mechanical liquid/solid separating system. For one of the biggest API contract manufacturer in Asia AVA started a project with performing trials in the AVA Laboratory.

The task in the actual project was not only to handle the wet cakes coming from the centrifugation but also to dry crystal clear liquids. The main task for the design of the AVA Conical Dryer was that all kind of products coming into the dryer can be handled optimally. Even phase changes of the products during the drying cycle as well as lumpy and sticky products have to be dried properly. The tests had been successful as expected and the Scale-up for the production machine was done. The technology of the AVA Double Helical Agitator is very well suited and most flexible for the different tasks mentioned. By changing the process and the operational machine configuration such as speed of the main agitator or with the use of a separate lump breakers all kind of materials can be handled with an AVA Vertical Dryer. This shows the flexibility of the AVA Vertical Dryers/Reactor in multi-purpose plants. It is understood that the machine is in GMP design and can handle both raw materials wet cakes as well as liquids.

## The conditioning of fly ashes



The conditioning of fly ashes and dust has a long tradition at AVA. As primary and secondary equipment suppliers in coal fired power plants, in steel mills, in coking plants and incinerators AVA has delivered reams of machines and systems worldwide. The key component is always an AVA horizontal mixer in special heavy duty design. The advantages of AVA compared to conventional systems are an optimum homogeneity and 100% dust free final product, less wear and tear and a very high operational availability, since there is no blocking of discharge. AVA can deliver not only single machines, but also a complete system from ash silo up to truck loading.

## AVA Horizontal Mixers replacing paddle mixers / pug mills



Quite often single or twin shaft paddle mixers ("Pug Mills") are installed for the purpose of ash and dust humidification.

The very most disadvantages for the customer and the operation personal are the lack of homogeneity of the humidified ash and dust as well as the cleaning cycles – very often daily.

The AVA Horizontal Ash humidifier works different to this overcome technology of using paddle mixers. The main advantages are:

- The final product coming from the AVA - Mixer has an optimal homogeneity because of an intensive and high back mixing effect. This effect is caused by the geometry of the mixing elements. Even variations in feeding and dosing of the products are compensated.
- A blocking inside the AVA Mixer or the mixers discharge is prevented even after a long time of operation.
- The special AVA Mixing Elements are designed for a self-cleaning effect inside the mixing drum. A manual cleaning is not needed.

Due to this arguments AVA replaces many paddle mixers. The costs for cleaning, service and maintenance are heavily reduced. The optimal humidified and dust-free final product stays for the best possible performance in this area.

## AVA Horizontal Mixer for Catalysts



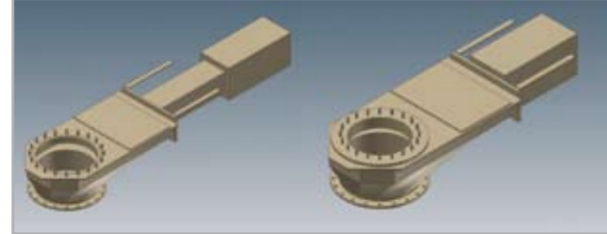
The production process of catalysts includes a mechanical dewatering by a filter press. Normally a drying step is installed after this dewatering process.

Depending on the characteristics of the catalysts the filter cake coming from the filter press tends to a thixotropic behaviour. If these products are treated with the addition of mechanical energy the product character changes from a dry powder to a wet cake or a even a fluid. Due to this fact an effective drying process behind the filter press is no longer given.

Therefore an AVA Horizontal Mixer was installed. The mixer handles the thixotropic filter cake coming from the filter press and mixes it with dried product which is conveyed from the output of the dryer to the inlet of the mixer.

As a result the product fed into the dryer has a homogeneous consistency and can be conveyed by rotary valves and conveying screws.

## High temperature vacuum gate developed by AVA



The pneumatic feeding and discharging of vacuum dryers and reactors is one of the key stages of the whole process. A special challenge is the handling of sticky and abrasive products in combination with high temperature and vacuum. Typical problems can be trouble in operation caused by sedimentations in dead spaces.

Due to the lack of high quality suppliers on the market and the extensive experience of AVA in this field, an own development was successful started. The result was an cost-efficient vacuum gate valve, with a proven process stability up to 400°C. Special features are the very good accessibility, manual and automatic cleaning by big inspection doors. Due to the high and precise manufacturing quality, it was possible to design a special scrapper, enforcing the high availability.

## Optimization of Sinter Plants

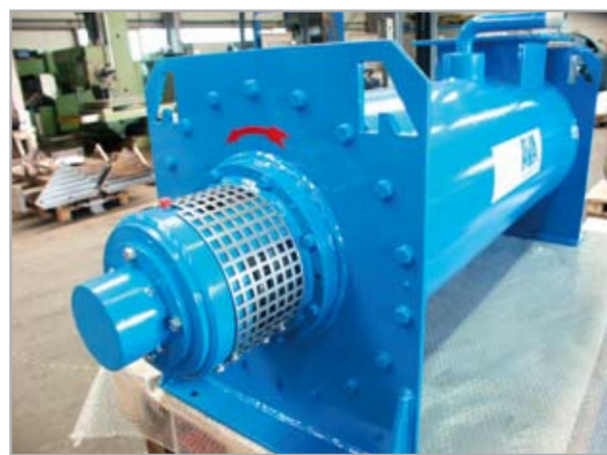


As a leading supplier of mixing and drying technology for heavy duty applications AVA has developed a mixing technology especially for sinter raw mixes which achieves higher productivity and availability of the whole entire sinter plant.

AVA Sinter Mix Preparation System with continuous intensive mixers and granulators eliminate blending yards and thus drastically reduces the space requirements and consequently investment costs for a sinter plant. The main benefits are:

- Completely homogeneous sinter raw mix with high and even permeability
- High quality of the sinter material
- Increased productivity of the sinter plant even if iron ore or fine grain sized raw materials are sintered
- High and stable sinter quality
- Low energy consumption
- Less wear compared to rotary pan mixers
- Less space requirement compared to conventional rotary drums
- Improvement of workplace conditions for employees

## Continuous mixer for salt-industry.



AVA recently got the order for a continuous mixer for duty in underground mining. The operation circumstances with ambient temperatures of 40°C, the very dusty air and the special requirements in underground operation required high demands on the AVA technology. The AVA mixer is designed in a special heavy duty design and mixes kali salt with water and additives to salt concrete. The salt concrete is used directly in the mines for casting the basements for mining equipments or service rooms.

## AVA Drying plant for food ingredients



AVA is supplying a complete drying plant for the drying of food additives. The drying plant consists of two AVA Conical Dryers which are installed for a parallel process. The wet material coming from a centrifugation is fed into one dryer while the other one is in drying process. The challenge given by the production cycle was not only to dry the surface water out of the powder under a vacuum atmosphere. It was also to evaporate the crystalline water. Both process steps have been tested at AVA Test Facility and was evaluated in different drying cycles. It was found that under all circumstances AVA's technology of the conical shaped vertical dryer is the best possible solution for this purpose.

## We optimize your lab



Many laboratories operate as independent profit centers and consequently have to cover their expenses. This objective is difficult to achieve with just research and development orders. Some enterprises therefore try to improve their capacity utilization with small scale production jobs.

With the multifunctional AVA vertical vacuum mixer and dryer both functions are possible product development as well as production.

The HVW-VT offers a good number of advantages: Optimal heat transfer values granted by an agitator, operating with a small gap to the heated wall. Also low product losses due to a nearly complete discharge can be realized as well as easy cleaning and inspection when changing products. By simply lifting the top cover with the agitator optimal accessibility to the dryers interior is offered. The installation comes complete with all the required peripheral equipment like vacuum, condensation, heating and discharge valves. It is built onto a steel frame adapted to the needs of the customer and the space available. The finish is according to GMP requirements, including documentation and validation assistance.

## Whether red, whether black, whether brown...



To get the favoured taste in your final product like for example cocoa butter in the up-stream process the ph-value of cocoa nibs and following from this the colour as well have to be adjusted.

In the AVA Reactor-Mixer the cocoa nibs are heated by direct steam injection and well mixed to achieve an optimum temperature distribution without any hot or cold areas after short process time. To keep the temperature during the reaction phase the AVA Reactor Mixer is equipped with a double jacket for heating with steam. The specially designed AVA-Helix-Agitator mixes the cocoa nibs very gentle to minimize a breaking and sustains the particle size of the incoming cocoa nibs. By adding and dispersing of the alkalisation additive the ph-value will be adjusted according to the requirements. The discharging of the cocoa nibs is effected by gravity, assisted by the rotating AVA Helix-Agitator. At the end of the process different colours like red, brown or even black can be adjusted to fulfil the customer's requirements.

## AVA stands for quality - worldwide



We consider it as part of our success that quality is the leading line for AVA as well as in design, manufacturing and assembling. The cost effectiveness for our customer is in the mid and long term much higher due to minimal downtimes and minimal costs for spare parts. It is therefore not surprising to us that in June 2008 the DEKRA Certification GmbH issued the ISO 9001:2000 certificate for further 3 years without any conditions.

All our machines for the European, Asian and African markets are manufactured in one of our production sites in Lower Saxony and Bavaria. For the American market a new manufacturing plant in the US was established, according to ASME standards.