

## More than 50 years of perfect seed treatment

Ladies and Gentlemen,

My name is Alexander Kirchherr and I am General Manager at Willy Niklas GmbH Apparatebau in Mönchengladbach and a bachelor professional of plant technology.

Today I would like to tell you something about the companies Willy Niklas GmbH and Reiter Seed Processing, under the heading: More than 50 years of perfect seed treatment.

Willy Niklas GmbH is based in the far west of Germany, in Mönchengladbach.

The company was founded in 1973 by Mr Willy Niklas and the first continuous treater was built immediately.

In 1994, the first batch treater is created and a patent application is filed for the innovative treatment concept.

The world's first 270-litre batch treater was built in 1999.

In 2001, the first batch treater for fuzzy cotton was produced.

In 2017, the company was sold to the brothers Georg and Johann Reiter, and Mr Willy Niklas went into well-deserved retirement.

Nikki was developed in 2023 and has been marketed since 2024.

In 2024, we invented the magazine treater, for which a patent is pending.

Many continuous treating lines are still being built every year, with a capacity of 2-60 tonnes/hour (based on wheat).

Batch treater are produced from laboratory devices with approx. 5 grains/batch up to treater with a filling quantity of 200 kg.

Here you can see a few special editions for the company's 50th anniversary.

## What exactly is treatment?

During treatment, the seed and planting material is coated with treatment agents. These can be in liquid and/or powder form.

They usually consist of:

fungicides / insecticides / micronutrients / soil stimulants / fungal spores or serve to store water.

Special forms of treatment are pelletising and incrustation, which can of course be done with Niklas batch treaters.

It is important to note that treated seeds and seedlings **MUST** be identified by a conspicuous colour, as they are not allowed to enter the food chain under any circumstances.

Here is a small illustration of what can actually be treated. Examples are cereals, oilseed rape, maize, sunflowers, sugarbeans, grass, fine seeds, or here, fuzzy cotton and potatoes.

Here you can see that each treated grain has to be conspicuously identified and the companies use the respective colour as a recognition value for marketing.

Product programme:

## **Nikki**

Almost all of you need a powerful batchtreater that is seed-clean after each batch for performance tests and small-scale multiplications.

For this reason, we have developed our "Nikki".

Nikki is a batch treater for 100-1500 grams of seed! It is designed so that it can really be operated anywhere as a table-top unit.

Absolute grain purity after each batch is just as much a matter of course as the precision with which the treatment is applied and distributed.

It is entirely up to you whether you want to apply the treatment with a dispenser, pipette, syringe or add a peristaltic pump.

The range of accessories includes various inlet and discharge hoppers so that you can configure the right treater for your exact needs.

Because we manufacture all components ourselves in Mönchengladbach, we can also fulfil company-specific special requests without any problems.

Here you can see the treating result with only 4ml/kg seed for rye, barley and wheat. In my opinion, this is a very good result, which showed a 98-100% seed coverage with treatment in the laboratory test.

Like all our treaters, Nikki is also made of stainless steel and will convince you with its precision and price.

Would you like to see the machine live? We've brought it with us! Would you like to test the machine in your company? No problem, we will be happy to provide you with Nikki free of charge for 1 week.

## **WN 5/00**

We have revised our smallest batch treater and transferred it to 2024!

The WN 5/00 is virtually the basis for the magazine treater.

We achieve excellent treatment results from as little as 5 grains.

All you need is a 230 V connection and compressed air and the machine is ready for use.

We have integrated a blow-out nozzle into the treating chamber to ensure absolutely no mixing of seeds.

An integrated suction fan and a peristaltic pump are installed.

The controls are now also operated via a touch display and are completely self-explanatory!

### **Potato treater:**

Not only seeds can and should be treated, seed potatoes should and can also be treated!

Our potato treater impresses with its very simple design, no waste of resources as the spraying takes place inside the stainless-steel drum and absolutely gentle treatment of the seed potatoes.

The potato treater can be fed with up to 5 tonnes/hour via a belt conveyor (which is not visible here).

It is also possible to mount the potato treater on a trailer and carry out inter-company operations.

As with all our machines, all components that come into contact with the product are made of stainless steel and only high-quality drive components are used.

### **The Willy Niklas magazine treater!**

In all the breeding companies I have been to, the same question is always asked: How do we treat our 12-chamber magazines?

What is available on the market? Does it meet our requirements? Do we build it ourselves or do we leave it at that and sow the young generations unprotected/untreated?

The answer to all these questions is this fully automatic machine (patent pending)!

It is structured in such a way that you as a user have three different ways of using it:

Variant 1: You do not fill your seed into magazines, but directly into our magazine treater. As soon as 6 samples are filled (or as many as you want to fill in a row), press a start button and all samples are of course fed to the individual treating processes completely separately from each other.

We have 6 individual treatment chambers in which up to 6 samples are treated at the same time.

In our chambers, the grains are set in motion with flexible, gentle paddles and the treatment is applied. We have installed a disruptor in the chambers, against which the paddles slide with each rotation, thereby shaking off any sticky grains or sticky treatment.

6 sensors recognise if you have not filled individual chambers and the supply of treatment is stopped for this treating unit. This prevents treatment from entering a chamber in which there are no grains.

After the treatment process, the treated grains fall directly into a waiting magazine.

For you as the user, there is absolutely no more work involved than with normal filling of chamber magazines, but the result is that the seed is now treated and protected.

Variant 2: You fill your untreated seed into 12-chamber magazines and then want to treat them and transfer the treated grains to new magazines.

For this purpose, we obtain a magazine table from Haldrup, which is placed on the magazine treater. It works with all brands of 12-chamber magazines! You clamp your untreated magazines into the magazine table, add empty magazines to the magazine treater and the treating process starts fully automatically.

Variant 3: You have filled your untreated seed into 12-chamber magazines and want the treated seed to be returned to the exact same chambers. Reasons for this may include labelled magazines.

We have developed transfer plates for this purpose, which you can slide onto your filled magazines, just like the lid plates.

Here in the picture, you can see the actual magazine, our transfer plates. By turning it 180 degrees, the grains fall into the magazine plate, which you can clamp onto the magazine table and place the original magazines in the correct order in the magazine treater and the samples are filled into exactly the same chambers where they were before.

Our treating chambers can be blown out fully automatically with one blast of air (or several) after each sample to ensure that no grains are mixed together.

Each treating chamber has its own peristaltic pump! Forget the headaches of past decades when ONE quantity of treatment had to be divided between 12 chambers... With us, each chamber receives the exact amount of treatment that you have previously set on the very clear touch display.

The supply of treatment is placed on a magnetic stirrer so that you always apply a homogeneous treatment.

As soon as the treating process is complete, the grains are filled into the lower, empty magazine. This is done using a special suspension system, which ensures absolutely tight and mix-free filling even with old, worn magazines.

The magazines move in and out of the inside of the machine via a kind of elevator. This is very ergonomic and safe for you as the user, as you insert and remove the magazines at the red arrow in a good position.

Our magazine treater requires a 230-volt socket, a compressed air connection and an aspiration connection (which we can see here). This means that our fully automatic machine can be set up anywhere.

I think the treating result speaks for itself!

I have left extra space between the magazines to show you that there is no carry-over inside the machine and that only the holes where seed has been filled receive treatment.

In the following video I would like to show you the machine in action.

The same applies here: We will be happy to provide you with the machine for a trial period of 1 week, please contact us.

## **Cone coating:**

The cones (rotors) in batch treaters from Willy Niklas GmbH are made of stainless steel.

This production method allows a service life of several thousand tonnes of seed before the cone has to be replaced.

Very abrasive seeds, such as seed peas, cause high wear and tear even on stainless steel.

Through years of research and testing, we have succeeded in finding a coating that significantly increases the life expectancy of the cone! One of our customers sent us a cone for testing in 2022 and we were able to measure that after 12,000 tonnes of treated peas, 90% of the coating thickness was still intact! Other series of measurements also confirmed this result.

This coating can therefore increase the life expectancy of a cone by up to **10 times** the normal service life!

## **Step Technology**

Firstly, I would like to explain to you what cycles are involved in a treating-prozess.

It starts with the seed intake, followed by the application of the treatment, then the post-mixing time and finally the seeds are discharged. Depending on the amount of treatment, we have a total cycle time of 22-42 seconds.

Step Technology consists of a microphone and a very complex algorithm that has been developed by Bayer CropScience over many years. It therefore hears when the applied treatment has dried and can shorten the post-mixing time.



The aim was to optimise the treating times in order to protect the seed as much as possible and to be able to treat more seed per day.

Ideally, 5 seconds can be saved per cycle, which can increase the output of a 200 kg wheat batch treater by up to 4 tonnes/hour.

Step Technology is currently used in maize and wheat, other crops will follow.

### **Cleaning programme**

In every seed treater there are areas where dust can accumulate and build up. Dust or impurities are the natural enemy of high-quality seed. If the dust builds up over a long period of time, it will eventually fall into a batch and end up in the seed. This is an unwanted and annoying event for both, the producer and the user. If a sample for the Heubach value is then taken from precisely this batch, the entire batch may be cancelled.

To solve this problem, Willy Niklas GmbH has developed a cleaning function. With this function, it is possible to run the cone forwards and backwards fully automatically. The frequency of the reverse rotation can be set by the operator, also the speed during cleaning. In addition, the mixing deflectors have of course been newly developed, as operation against the normal direction of rotation would not have been possible with the normal mixing deflectors.

Thanks to the cleaning function, which is adapted to the grain and the conditions, it is nearly impossible for dust to build up in the treater and contaminate a batch at some point.

I have enlarged the display on the touch display for you here; the cleaning parameters can be set very easily.

### **Gravimetric treatment dosing (liquid or powder)**

Our powder dosing systems consist of a weighed storage container with an integrated agitator and a discharge screw. Of course, also

these are made of stainless steel. So far, all of our customers' powdered products have been dosed with this system. The discharge screw and the agitator are frequency-controlled and can therefore be customised for each product.

With volumetric dosing systems, the parameters of viscosity, flow behaviour of the product and temperature must be constantly taken into account in order to achieve an optimal treating result. For this reason, we offer all dosing functions, i.e. for liquid treatments as well as for solid, powdered treatments, as gravimetric versions.

As the products are weighed, it doesn't matter what the flow properties or the daily temperature is. A gram is and remains a gram, regardless of whether it is at 4°C or 30°C.

The liquid dosing units, our dosing stations, consist of 2 peristaltic pumps. The larger of the two peristaltic pumps is sucking treatment from the storage tank and pumps it into the weighed dosing tank on the station. The dosing pump is frequency-controlled by the PLC and doses the desired amount of treatment into the treater during the treating process. In this way, we achieve a dosing accuracy that sets new standards!

### **TKW Treatment**

Standard grain treatments are specified in ml/100kg of seed. But how many grains does this 100kg consist of? I have provided you with a sample calculation here:

If a batch of wheat with a TKW of 38 grams is treated, 100 kg of seed will consist of approx. 2.6 million grains. If a batch of wheat has a TKW of 58 grams, 100 kg of seed consists of approx. 1.7 million grains. The surface area increases by the square, but the volume is multiplied by a factor of 3. This means that the ratio of volume to surface area changes significantly!

With other seeds, it is already standard practice to state the application rates in ml/grain unit.

For this reason, we offer the TKW Treating function.

The desired application rate per 1000 grains and the respective TKW can be entered very easily in the visualisation. The software uses this data to calculate the exact treatment quantity per batch, preventing over- or under-treatment due to fluctuating TKW.

### **Seed scales**

Willy Niklas GmbH not only stands for outstanding treatment technology.

We also offer seed scales of all sizes, whether packing scales for trials or continuous scales in your seed reception centre. Whether 1 kg per weighing or 120 tonnes/hour, we have a solution for everything. Even low-flowing bulk materials or products that tend to build bridges, such as grass seed, can be precisely weighed with our belt conveyor scales.

### **Sample taker**

Correct sampling is of fundamental importance in order to obtain a sample that is representative of the whole. You can either have your employees trained for this, or you can install one of our sample takers, manufactured in accordance with ISTA regulations.

Our sample takers are very easy to retrofit into existing pipe systems with a diameter of 150-300 mm. They feature intuitive operation, allowing you to customise the sampling time and number of samples. We also offer samplers for ATEX areas and food production.

You can also expect many new developments for you as a customer in the future, here is just a quick hint of an innovation that can be retrofitted to any existing sample taker and which greatly expands the monitoring options for you as a system operator!

Do you have a special requirement, an idea but no way of realising it? No problem, just contact us! As in this example, one of our customers wanted to simplify the dispatch of trial seeds. The result is the seed carousel, with which the dispatch of trial seeds can now be handled by one person and the error rate has been reduced to a minimum.

Now we come to the company Reiter Seed Processing.

The managing directors of Reiter Seed Processing are Georg and Johann Reiter.

The managing directors of Niklas are also Georg and Johann Reiter, but the companies themselves are completely independent.

Reiter Seed Processing was founded in 2013 and is based in beautiful Landshut, approx. 60 km north-east of Munich.

The company is mainly involved in project planning and plant construction. It makes no difference whether the project involves small breeding stations or industrial seed production sites with a throughput of several thousand tonnes per year.

Annual maintenance work, the installation of new systems and rapid assistance with repairs are ensured by a staff of almost 45 employees.

Big bag fillers, brushing machines, air sifters, seed mixers, vibro sieves, batch and continuous flow dryers and de-awner machines are manufactured in our own production facility.

If you have a product where you do not know exactly which machine is best for cleaning your product, Reiter Seed Processing has a test lab, equipped with all the machines required for seed cleaning, to which you are cordially invited.

Reiter Seed Processing also organises the entire compilation and dispatch of all materials itself, so you don't have to worry about a thing.

I would now like to introduce you to a few more machines in detail.

Let's start with the brushing machine:

These brushing machines allow you to brush off fungal spores sitting on the grain and polish the grain.

We have centralised brush adjustment and quick-release clamps on the basket, making it very easy to clean and replace. All sizes, from laboratory applications to conventional seed with a throughput of several tonnes per hour, can be implemented.

Our continuous flow fluid bed dryer and batch dryers are required if you have added a large amount of liquid during the treating process and the seed needs to be dried. The dryers can be operated with hot air, but also with dried air, which of course makes them very economical. The size of the dryers depends on the required capacity, we can build any size you need.

The spiral separators from Reiter are a miracle weapon in seed cleaning! Unwanted seeds are sorted out by gravity, and the cleaning result can be customised for every crop thanks to the adjustable rotation speed and angle of the spiral separators.

We also build big bag filling systems ourselves. Whether gross or net scales, any weight can be filled dust-free into any big bag shape. The entire weighing and filling process is automated, which consistently prevents potential errors.

If you are interested in a colour sorter to raise the purity of your seed to a new level, then Reiter is also the right company for you. Reiter Seed Processing is the general distributor and provides service for ASM colour sorters in the german-austria-switzerland region.

The product range extends from the Eureka, a laboratory machine that is very easy to operate and can be cleaned very quickly seed clean, to the Vision and the Quasar for maximum throughput with up to 6 sorting chutes for all seed types.

Thank you for your attention and I would be very pleased if one of your names would soon be on this list of satisfied customers.

Visit us at our stand and have a nice event!

Alexander Kirchherr