

NAVIGATOR 4.0
& RECIPE MANAGEMENT
**AUTOMATION
SYSTEMS**

westrup

EQUIPPED FOR CHANGE





AUTOMATION SYSTEMS

> Creating valuable solutions is our goal which is why all our products are tested and approved by our customers.

Our automation systems are developed with your processing needs in mind. After searching for ways to improve your operational stability, we settled on a line of products, which we know will make a difference in your business.

The Navigator 4.0 has been in the works for some time. And now, new and more precise measuring methods have enabled us to develop today's system which ensures a very high separation precision.

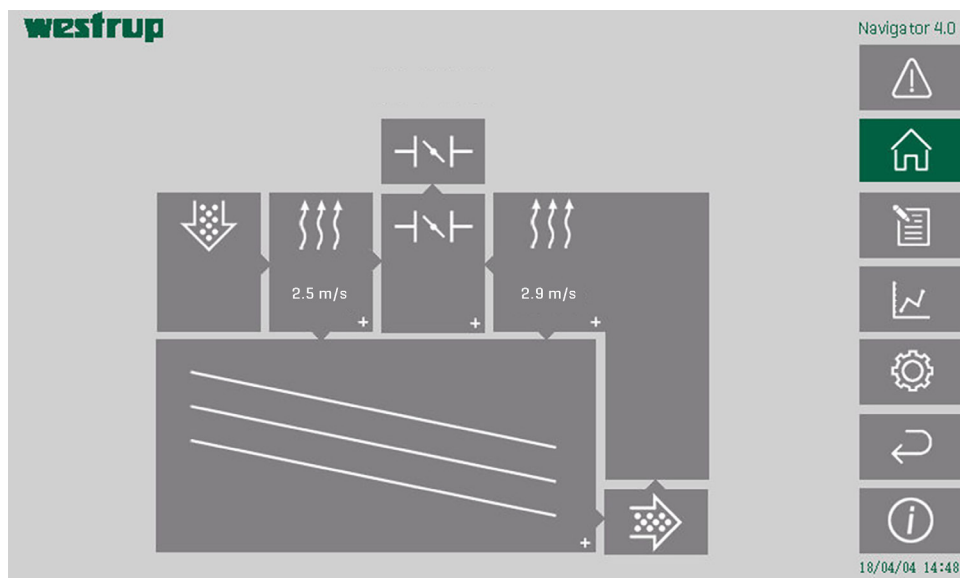
The Navigator 4.0 is a modular system allowing you to add on the features that best suit your requirements, and it is also available as part of a retrofit kit. This means you can upgrade your plant at any time to meet future seed cleaning requirements.

Our Recipe Management System benefits those who want a quick start-up of their plant. Previously saved machine settings for any seed or grain will ensure an automatic setup of machine inclinations, rotations, speed and the aspiration system as well as inform operators of screen and matle sizes.

From here, operators only need to make small adjustments of the machine settings resulting in a very short running-in period.

AUTOMATION SYSTEM

NAVIGATOR 4.0



> The Navigator 4.0 enables you to take control over the cleaning process and obtain processing stability.

The Navigator 4.0 control system offers the below key features:

- > Adaptive Aspiration Control (AAC) – stable air speeds | Pre- and final aspiration, ± 0.1 m/s
- > Easy access to machine settings
- > Intelligent alarms
- > Full connectivity – the system can interchange data with other systems

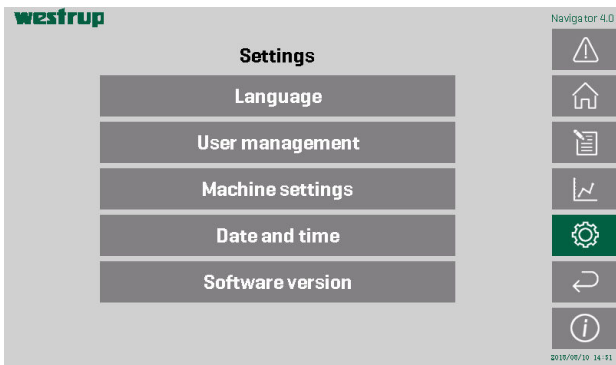
- > Prepared for Cloud enabling
- > Recipe management
- > Trend curve process monitoring

OPTIONS:

- > *Rugged Tablet HMI – machine operation at your fingertips*
- > *Connectivity kit (wireless machine communication)*
- > *More options/features are added on an ongoing basis*

INSTALLATION REQUIREMENT:

1 x 230V, 10A + PE

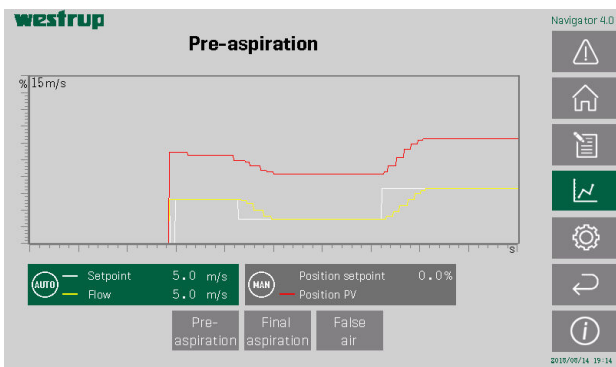


The 'Settings' page allows you to set up the Navigator 4.0 system to meet your requirements, view your already saved machine settings and look at previously collected data.

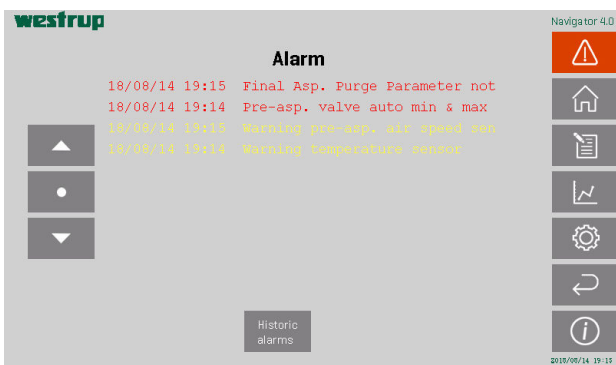


The 'Product' page allows you to create a new batch, start an already existing setup and manage your recipes.

For each batch you can save the aspiration settings for a shorter running-in period during the following batch start-up.



The 'Trend' page allows you to view the control system performance over a defined period of time.

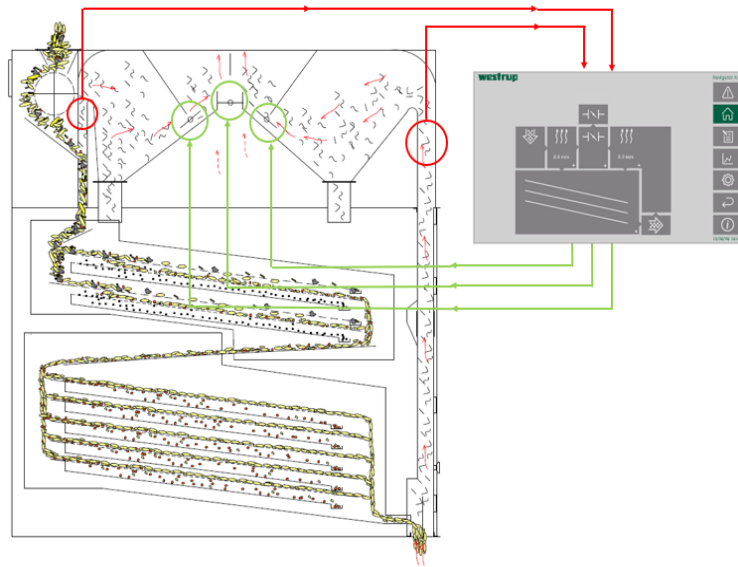


The 'Alarm' page allows you to see exactly where something is wrong, which enables you to solve the problem quickly.

AUTOMATION SYSTEM

ADAPTIVE

ASPIRATION CONTROL



> The Adaptive Aspiration Control enables you to maintain a constant air velocity in the internal aspiration system of the machine regardless of fluctuations in the general aspiration system.

The Adaptive Aspiration Control (AAC) can increase the cleaning process yield by 0.3% - 1% depending on the aspirations air fluctuations.

The AAC offers the below features:

- > Maintains a constant air velocity in the product sorting zones (pre-aspiration and final aspiration) regardless of fluctuations in the aspiration system – this without the need for intervention.
- > Gives a more uniform air separation quality.

- > Reduces the percentage of good product in the waste.
- > Will automatically regulate if/when product throughflow changes.
- > Shortens the running-in period from start-up to full operation, which reduces a lot of the unproductive time you would normally encounter until you reach a stable process.
- > Air velocities can be stored for each product in the recipe system.

INSTALLATION REQUIREMENT:

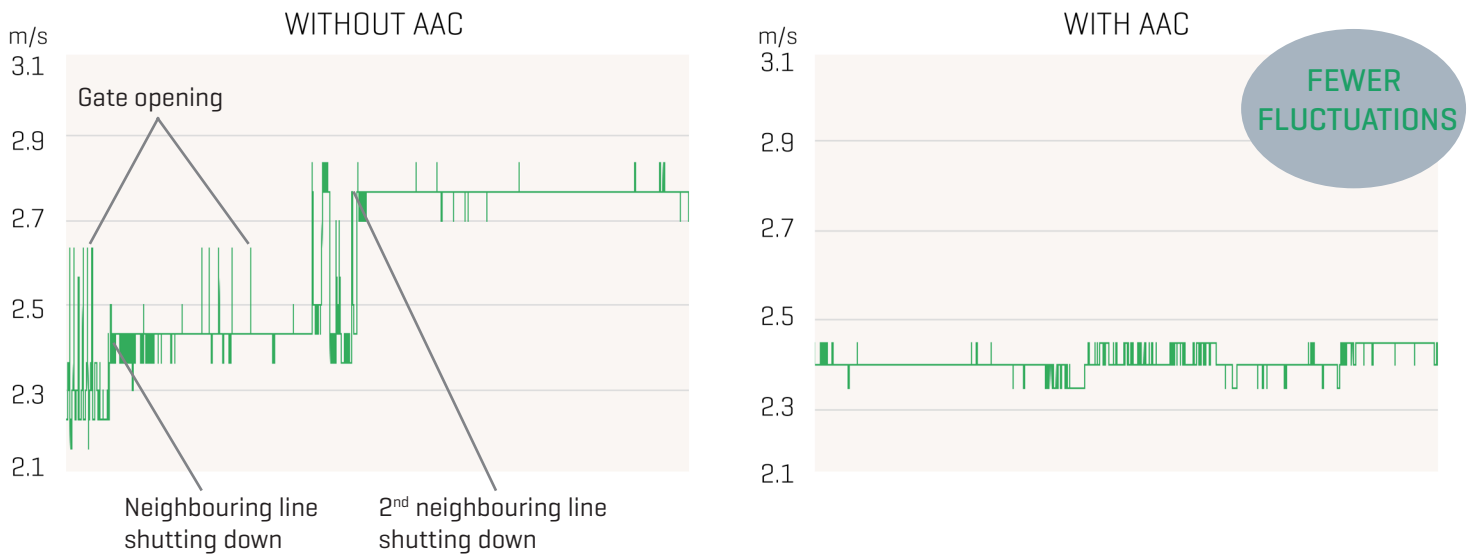
- > 6 Bar compressed air supply with coupling possibility of an 8 mm air hose

OPTIONS:

- > External false air valve
- > Expert assistance in fine-tuning the system

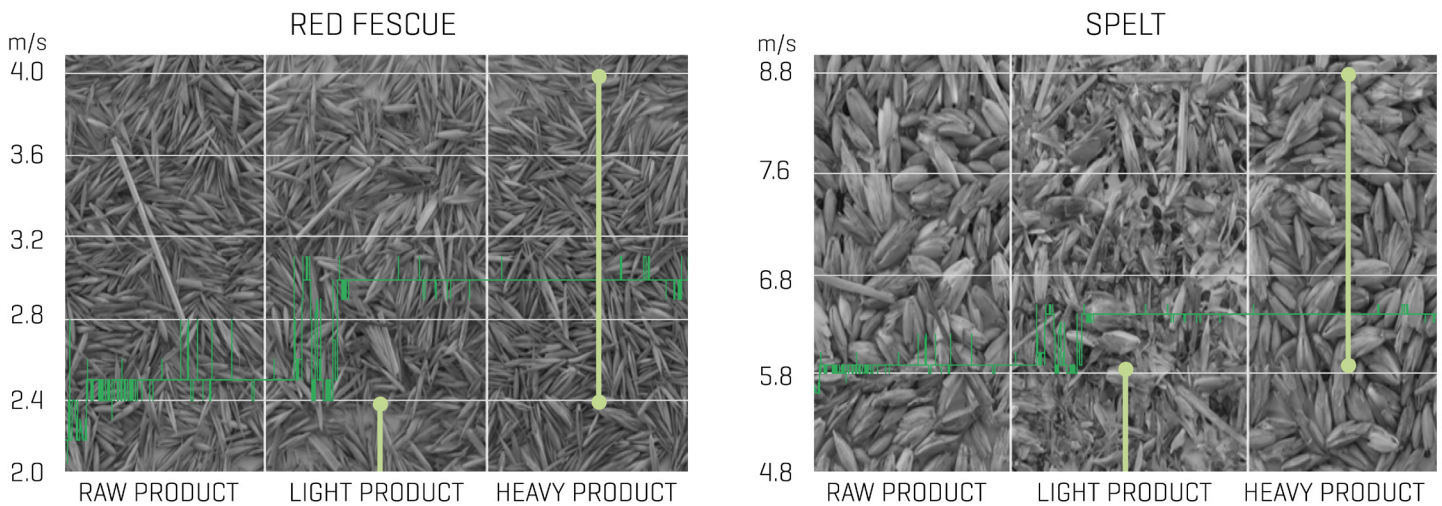
DATA WITH AND WITHOUT THE USE OF THE ADAPTIVE ASPIRATION CONTROL

The graph below indicates how the basic default settings of the Adaptive Aspiration Control system stabilizes your aspiration instantly. Further fine-tuning can be made for even better results.



THE INFLUENCE THE ASPIRATION SYSTEM HAS ON PRODUCT PURITY

In the following you can see the data for air cleaning a light product (red fescue) and a heavy product (spelt). The measurements indicate that fluctuations can have a big impact on product purity.



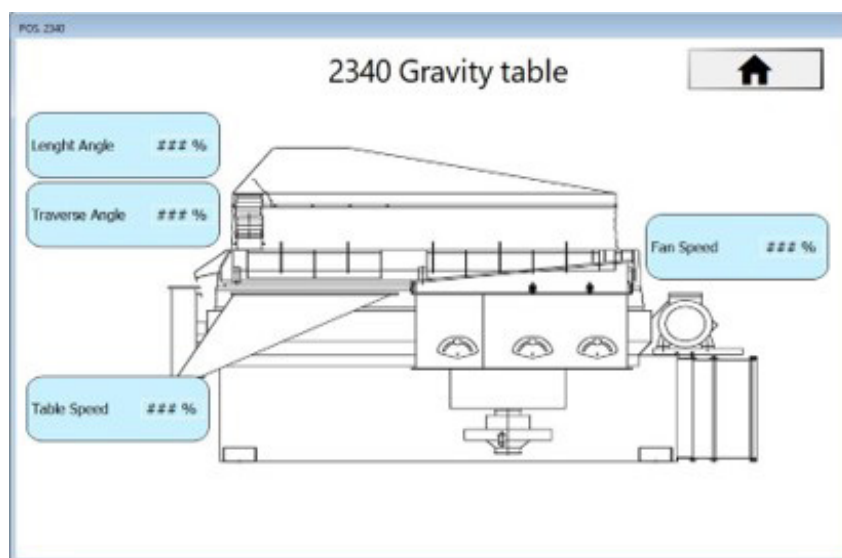
THE PROPOSED RETURN ON INVESTMENT FOR THE ADAPTIVE ASPIRATION CONTROL

	GRASS SEED	GRAIN
PROCESSING DAYS PER YEAR	200	200
INPUT CAPACITY PER LINE PER DAY	22.5 t	400 t
PROPOSED IMPROVEMENT	0.3 %	0.3 %
GOOD PRODUCT COLLECTED FROM WASTE PER YEAR	13.6 t	240 t
RETURN ON INVESTMENT	13.6 t x Price	240 t x Price

AUTOMATION SYSTEM

RECIPE

MANAGEMENT SYSTEM



Gravity Table: option to save angle of deck, table and fan speed settings

> The Recipe Management System enables you to save machine settings to automatically setup your plant for different types of crops. The saved machine settings ensure a short running-in period.

The Recipe Management System offers the below features:

- > Saves previously used setups and settings for different seed/grain batches.
- > Automatic upload of saved settings to ma-

- chines, e.g. inclinations, rotations and speed.
- > Provides information about screen and mantle sizes for the particular seed/grain batch.
- > Possibility of unmanned production.
- > Data collection and log of production.

OPTIONS:

- > Add on of Navigator 4.0 and Adaptive Aspiration Control (AAC) for air screen cleaner aspiration control
- > Video monitoring in different parts of the plant
- > Plant monitoring, e.g. for temperatures, dynamic loads, etc.

THIS SYSTEM PROVIDES A GREATER FOCUS ON PRODUCTIVITY WITH A QUICKER, MORE PRECISE AND SAFER START-UP AND AN EASIER CHANGE BETWEEN DIFFERENT SEED/ GRAIN BATCHES.

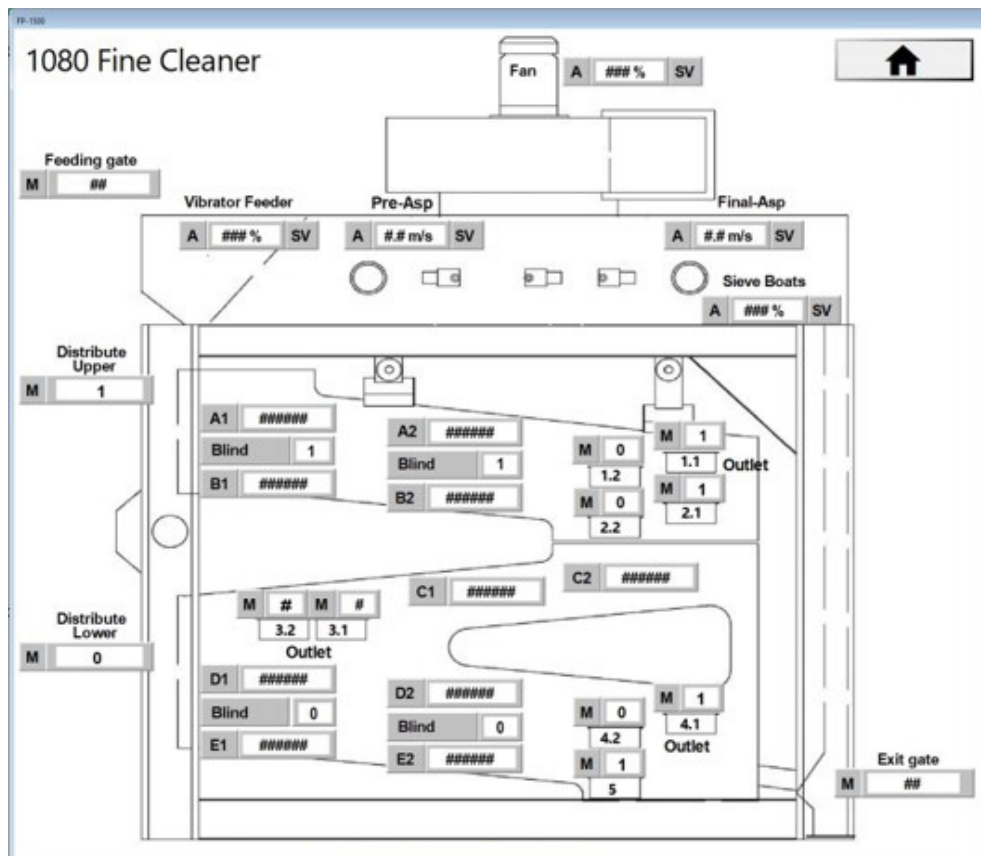
VIDEO MONITORING BENEFITS:

- > Better overview of machines from above/within.
- > Better use of operators' time, as they can monitor machines from screen.

PLANT MONITORING BENEFITS:

- > Easier overview of temperatures and dynamic loads in entire plant.
- > Easier overview of service intervals as well as digital service logs on single machines and entire plants.
- > Online monitoring of plant.
- > Data collection.

FOR AIR SCREEN CLEANERS



For screen cleaners the Recipe Management System automatically adjusts the feeding module and informs operators of screen sizes and placements.

For air screen cleaners you have the possibility of adding on our Navigator 4.0 and accompanying Adaptive Aspiration Control system for higher aspiration stability.

SURVEILLANCE VIDEO

> Follow the seed processing from the control room. Video surveillance is advantageous to use over the Gravity table.

By adding video surveillance in parts of the processing line, operators can follow the seed processing from the control room. The advantages are:

- Enhanced top-view visibility or a better range of vision from within the machine, rather than side-view from next to the machine.
- Easy evaluation of current machine performance to adjust settings accordingly.
- Less nonproductive time since physical presence at the machine can be reduced.



FUTURE SOLUTIONS

> In this rapidly evolving world you need to constantly be one step ahead to remain successful in your business.

At Westrup we continue to search for ways to improve your future business by creating new and valuable solutions.

We always test new machines and features in cooperation with our customers to get real and relevant feedback. Only when we have thoroughly tested our new technology it will be released and implemented.

We take pride in being open and engaging when seeking new opportunities and believe that adding automation systems to your plants will provide the flexibility required for you to run a stable operation.



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