

## Dust Removal during Nonwoven slitting process

■ With the goal to improve product quality especially for hygienic products and to maintain the same end product quality, it becomes essential to add additional aggregates and conditioners to the production line.

A mayor problem in nonwoven during slitting and winding is the dust contamination. This contamination occurs at the knives and also at each idler roll which the web passes prior to winding. These dust particles and fibres contaminate the web and remain there during the winding process.

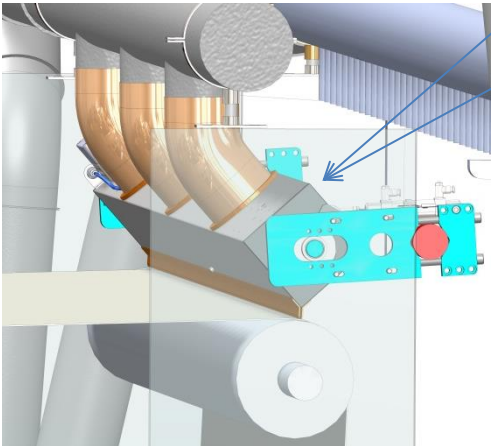
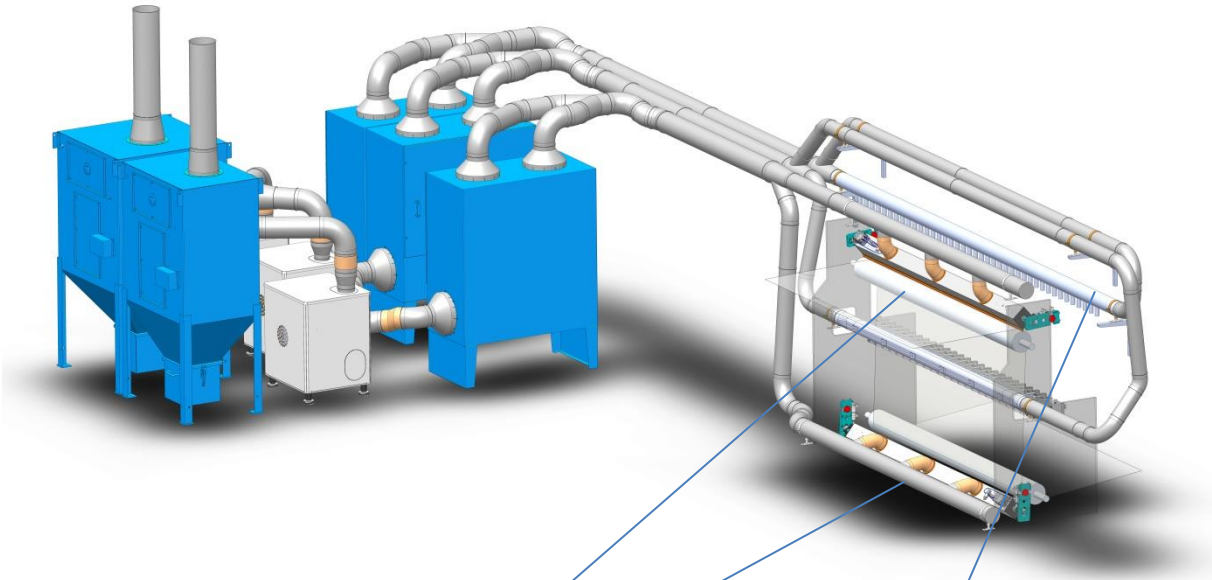
After off winding prior to the next production process these very same particle contaminations get transported along on the substrate surface. There it does not just lower the final product quality of the final product, it can also causes many negative production issues such as plugging filters, contaminating system sensors, generating down time as well as polluting the air around the machine which is a health risk for operators.

The **Xstream** surface in combination with **SLITstream** slitting dust removal is a non-contact dust removal system combination, which uses a high velocity air -flow to remove particles. By removing contamination during slitting as well as from the substrate surface prior to the following production process, the quality of the final product is substantially improved. This improvement of the final product is even greater when a low quality substrate or a substrate with “easy to break fiber” content is being used. Also additional problems resulting from the contamination of the substrate are solved at the same time when utilizing the **Xstream** non-contact surface cleaner.

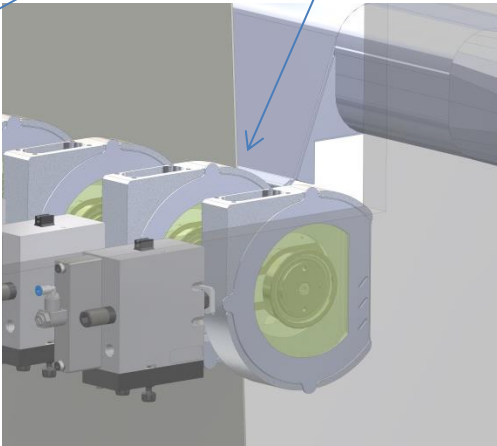
### Principle of function

■ The **Xstream** surface cleaner utilizes a special aerodynamic nozzle, which is brought within a close distance of the substrate surface. The combines slitting dust extraction system **SLITstream FUSION** for longitudinal slitting systems has been specially developed to remove dust directly on the longitudinal blades. The designed suction hood generates a very high air stream within the system directly on the blades. This extremely powerful air jet itself collects the smallest particles. The **SLITstream FUSION** system can be appropriately adapted for all conventional knife holders available on the market from various manufacturers. It combines the latest knowledge in aerodynamic airflow technology with the electrostatic discharge of substrates before the cutting process, creating a ‘ready to use’ extraction system. The development of the combined **Xstream & SLITstream** system is based on aerospace technology, where the air is forced into a certain direction at an extremely high speed when it reaches certain profile shapes. Our patented AUTO<sup>DC</sup> static neutralizing system, which is positioned prior to the cleaning process guarantees that the particles are not attached due to static charges. With this technology the efficiency of the systems is superior and will reach removal rate results of >98%.

Complete installation of **Xstream** & **SLITstream** on slitter rewinder unit



Surface cleaner upper / lower side



Slitting dust removal system



## Other system features

■ The **SLITstream** system was developed in collaboration with leading global companies from the paper, film, nonwovens and tissue sectors. The result is a user-friendly system, which allows blades to be changed using a magnetic clasp without the need for tools. The cover of the suction hood is also transparent and the overall structure is designed in such a way that allows the blades to be grinded multiple times. The **SLITstream** design is automatically suited to the ever smaller blade diameters.

## Network / software features

■ The system can be integrated into all standard industrial networks e.g. Profibus, Profinet, Ethernet etc. Alternatively, communication with suitable devices such as tablet PCs and smart devices can be established through iONlink via wireless Bluetooth or USB cable transmission. The iONlink Bluetooth module is plugged into the network at any point and enables the system data of all system participants to be received wirelessly and in real time by android-compatible tablets or hand-helds. Visualization and operation are simple and intuitive via touchscreen using the iONpilot Hildebrand app.

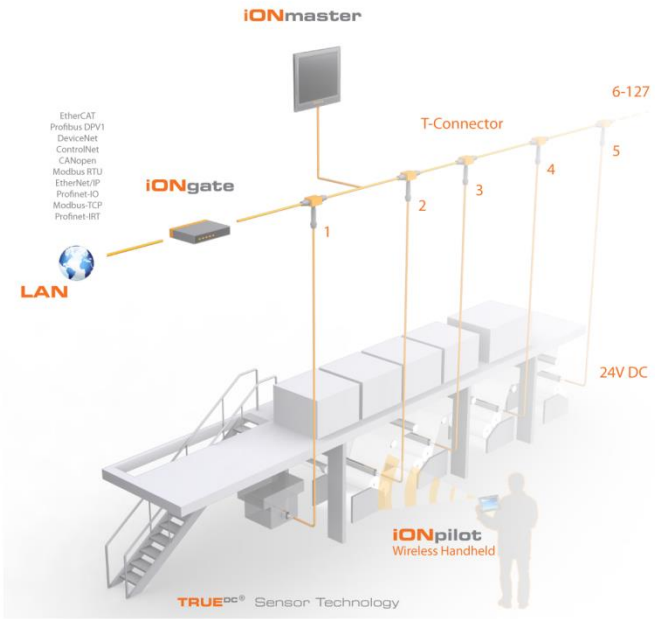
The following system-relevant data can be read out, processed or visualized.

- Cleaning efficiency
- Ionisation efficiency
- Vacuum
- Speed of air flow
- Filter condition
- Condition of filter dust container
- Condition of fan/frequency converter
- Cleaning module positions
- Maintenance information about the filter and ionization system

Access of every individual system participant to read and set detailed system data is possible through the process engineer.

The graphical presentation of the values and storage to the log book can be used to document the quality of the production run. Measurement and verification for **100%** process control / TQM can be carried out without any problem.

Network overview for a typical application example:



**Conclusion**

■The advantage of the **Xstream & SLITstream** is its superior efficiency at low investment cost and easy retrofitting as well as low maintenance. The compact design allows its installation into all machines and applications. Particle counts under the microscope have proven a 98.2% particle removal rate of particles larger than 30 micron (a particle of 50 microns is just visible). The diagram shows the comparison between the different cleaning systems.

