



FILIP's double cleaners are excellent for use e.g. in Bühler Nova and Novapur sieves.

Sieve cleaners for plansifters: Why high-quality products pay off and positively influence the yield in the mill

by Mirko Filip, Filip Sieve Cleaners, Germany

Plansifters play a key role in daily mill operations. In the different passages they are responsible for the sifting and classifying of semolina and flours. Their efficiency depends, among other things, on how intensively and effectively the sieve surfaces are cleaned. But many commercially available sieve cleaners currently available on the market show dramatic differences in quality and workmanship, depending on the manufacturer. As simple as a sieve cleaner may look at first glance, it can be very different in terms of its efficiency, due to its workmanship, material, design, size and weight.

German company Filip Sieve Cleaners has almost 100-years experiences in the sieve cleaning business. Filip has focused on manufacturing sieve cleaners for the milling industry and has years of experience in world-wide exports of its products. Filip ships their cleaning equipment to countries all over the world – direct to milling groups and individual mills as well as through their global network of foreign representatives. Filip also supply

well-known mill builders around the world and manufacturers of sieve cloths and frames.

Material, weight and design of the sieve cleaner

When used in plansifters, sieve cleaners are exposed to very heavy loads. During 24 hours of continuous operation, they have contact with the sieve frame approximately 350,000 times. Because of this, a sieve cleaner must be made of a plastic that is equally hard it is elastic, so the sieve cleaner does not break apart, and so no parts of the sieve cleaner can break off.

Fragments of a broken sieve cleaner can destroy the sieve cloth and contaminate the product that is being sifted. What's more, broken sieve cleaners can no longer clean the sieve cloth. The result is that the quality of the flour drops, and the mill may have to be stopped, which costs the miller both time and money.

On the other hand, the plastic from which the sieve cleaner is made must not be too hard. With the horizontal swing of the plansifter, which puts the cleaners in dynamic motion, a material that is too heavy can attack the screen boxes and cause unwanted damage within the sieve field - especially in wooden screen

boxes. It is therefore of utmost importance to choose exactly the right degree of plastic hardness.

So, the material must be flexible and sufficiently elastic, while having a certain level of hardness, so that it can withstand the stresses in the plansifter and so that it does not wear out prematurely.

The same is true of the weight of the sieve cleaner. Sieve cleaners that are too light cannot move dynamically with strong product flow in the sieve field. In the worst case, they remain at a standstill within the sieve field, which means that no large-scale sieve cleaning can take place. This reduces the net sieving area and thus the yield. If the sieve cleaner is too light and remains at a certain point for too long, it can also cause the sieve mesh to break under punctiform loading.

This means that sieve cleaners require a specific weight, so that they remain agile in the sieve compartment, despite the high amount of product. Sieve cleaners, for plansifter sieves without backwire, must be so heavy that, on the one hand, they can carry the product out onto the sieve pan and at the same time clean the sieve cloth effectively and evenly.

Furthermore, it's important to make sure that the material of the sieve cleaner is heat resistant. Depending on the geographical location of the mill (climate) and season (heat), very high temperatures can occur in the plansifter. In certain passages, the flour can also be very warm (e.g. C 1 – C 3).

The operating temperature inside the machine must not cause the cleaner to deform. Deformed cleaners no longer reach the sieve mesh evenly so that effective and uniform sieve cleaning cannot take place. In order for the cleaner not to become brittle during its service life and therefore to break prematurely, the material must also be resistant to fats and enzymes.

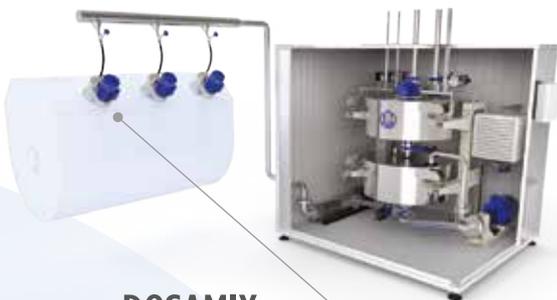


Straight edges of the bristles and the exact height for the corresponding plansifter sieve: FILIP's QM ensures always perfect products.



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In addition to material and weight, the design/shape of a sieve cleaner is crucial for its cleaning efficiency. Why is that? Because a sieve cleaner cleans most efficiently at its outer perimeter. Cleaners with the 'arched' triangular shape have been widely recognized as being the most efficient shape of this purpose.

With Filip double cleaners, the 22 studs or 21 bundles of bristles are arranged over the entire surface of the cleaner, ensuring above-average screening performance - even in difficult passages (e.g. C 4, C 7, C 10) or with products that are difficult to sieve.

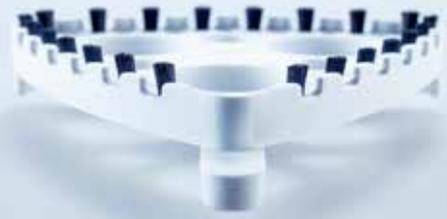
In summary: more cleaning elements on the top of the cleaner lead to a better sifting performance. The shape and arrangement of the bristles or studs also lead to the fact that the Filip cleaner ideally reaches the corners of the sieve compartments. Thus, the net sieve area increases and, as a result, the yield.

Extremely effective corner and edge cleaning, thanks to bristle or stud material, set right into the corners, thus increasing the net sieve area.

The quality of the brushing material

In the previous section it has been clarified why the shape, weight and material of the cleaner body are so very important. However, the right material selection does not only refer to the body of the cleaner, but at least as pronounced on the brushing material of sieve cleaning brushes. Here as well, the quality of the material and its workmanship determine how well a cleaner cleans the mesh (synthetic or metal mesh) and how durable a cleaner performs its work in the plansifter.

With regard to the trim material, Filip offers its cleaners in two versions: sieve cleaners with studs for primary sieves for wire and synthetic mesh with a mesh opening of more than 250 µm and sieve cleaners with bristles for flour sieves. Sieve cleaning



The ideal combination of shape, size, weight and material composition: FILIP's double cleaner - here with black nylon bristles for wire mesh - is resistant to fats and enzymes.

Double cleaner for plansifter sieves without backwire



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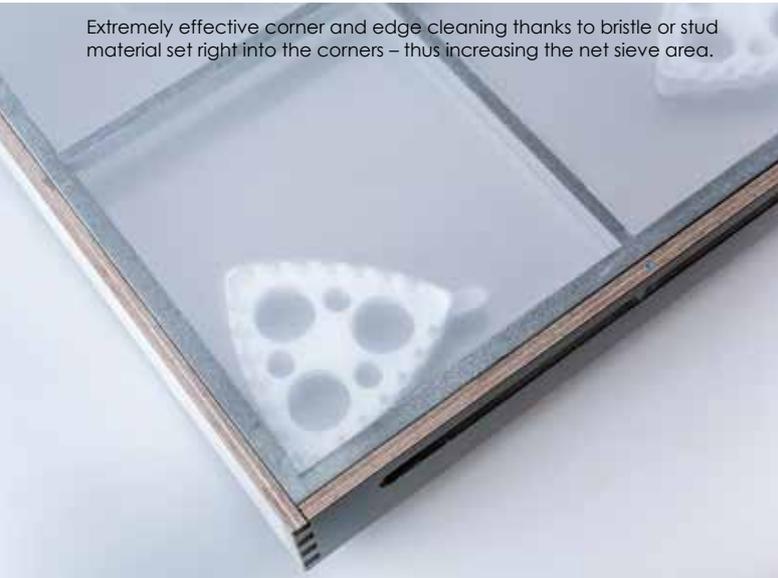
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Sieve cleaning brush for plansifter sieves with backwire

Extremely effective corner and edge cleaning thanks to bristle or stud material set right into the corners – thus increasing the net sieve area.



brushes can be supplied with black nylon for wire mesh of 90 – 250 μm , natural hair or white nylon for synthetic mesh with 90 – 250 μm .

By the way: it is still the unanimous opinion of millers worldwide that sieve cleaners with bristles clean the sieves at the best - especially in passages like C1 - C10 or in general when sticky product is being sifted.

When using natural hair Filip uses very high-quality material – namely horse mane. Due to its nature, natural hair manages to get into the small mesh openings of the fabric very effectively and “poke it free”. For hygiene reasons, nylon is used more and more as a trim material in many mills today.

Again, the selection of the right material is crucial for a gentle effective sieve cleaning. The nylon should not be too hard due to its strength because it then can attack the mesh. The result would be broken sieves and thus unwanted maintenance on the plansifter.

On the other hand, the nylon trim material must be strong enough to effectively clean the mesh. As with the material properties of the cleaner body, it is also important for the nylon to process exactly the right material composition. Due to the many years of experience, Filip has succeeded in finding exactly the right material thickness for the trim material.

In addition, care must be taken to ensure that the bristles have exactly the height that corresponds to the distance between the sieve pan and sieve cloth, within the sieve box of the plansifter, without backwire. Already a tenth of a millimetre can decide whether a sieve cleaner reaches the fabric or not or - if the bristles are too long - it gets stuck between sieve mesh and sieve pan, which means that the cleaner cannot clean the fabric evenly anymore.



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The trim material is also of great importance, how the bristles are anchored in the cleaner body. Should the bristles not be appropriately fixed in the brush, housing individual bristles or bundles of bristles may come loose and fall into the sifted product, thus polluting it.

Filip has developed a method that ensures that the bundles of bristles are firmly and securely anchored in the cleaner body – even under the extreme processing conditions in the plansifter.

Food compatibility (FDA/EU)

Although shape, size, weight and functional workmanship play a very important role in the quality of a sieve cleaner, one of the most important quality features of sieve cleaners is the food compatibility. The reason for this is obvious: in the mill, sieve cleaners come into direct contact with the product to be sifted – thus with foodstuffs. For this reason, the food safe suitability of the materials Filip uses is of the utmost importance.

The plastics used in the Filip range are made from materials that contain only substances recognized as safe in connection with food. Filip products are certified to the strict regulations in place in the US and Europe. Mills who want to offer the highest quality to their customers should use sieve cleaners, which are food safe – not least in the name of hygiene and safety.

Conclusion

Since there is a direct relationship between the plansifter efficiency and effective sieve cleaning, the choice of the right sieve cleaner is crucial for the high output of the sifter and thus for the net yield of the mill.

As a review: sieve cleaners can differ dramatically in terms of quality and workmanship. Whether a sieve cleaner effectively



Mirko Filip

cleans - including hard to reach corners - whether it lasts long and protects the operational environment, whether it is food-compatible and meets the requirements of the EU and the FDA, depends on a variety of parameters: shape, size, weight, material and workmanship.

High quality in sieve cleaners is worthwhile, because both the flour quality and the yield can be positively influenced by a high-quality sieve cleaner. Admittedly, the decision for a high-quality sieve cleaner may mean higher initial costs for the purchase. However, the slightly higher additional costs are offset by a longer life span, better flour quality, a higher yield and less maintenance in the plansifter.

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