

## Not all brushes are the same

### Washing materials for gantry car wash systems



Gantry car wash systems are typified by side and overhead rotating brushes that absorb the dirt from the surface of a vehicle. It is only once the system stops that one thing becomes apparent: the brushes are not all the same.

Gantry car washes can be equipped with different types of washing material in order to achieve effective cleaning results. It is important to bear in mind that these materials – depending on the type and properties – affect the requisite technical layout of the car wash. Water and power consumption change according to the weight and density of the washing material. Furthermore, the consistency has an effect on the contact pressure, density of the bristles and operating speed of the motors. At present, brush materials for gantry car washes can be divided into four groups: polyethylene (PE), polyethylene foam, textile washing materials and microfibre.

#### **Polyethylene (PE)**

PE is a tried-and-tested material that guarantees excellent cleaning results. The material, which is produced in fine strands, is even able to remove stubborn stains. When using PE, there is no danger

of scratching the vehicle's paintwork. However, the cleaning process causes the material to disintegrate, which is why PE is rarely found in gantry car washes any more. Wear occurs as a result of the spliced material ends, which in turn becomes visible on the vehicle surface. Generally speaking, this issue (which is purely visual in nature) can be rectified by polishing the surface once again. However, nowadays this might prove rather difficult to explain to the end customer. Even today, PE is still frequently used in gantry washes for commercial vehicles due to its excellent cleaning properties. Even awkward vehicle contours, such as on tractors or construction machines, can be thoroughly cleaned thanks to the spliced strands. Due to the fine-pored surface, there is less chance of dirt becoming lodged on the PE bristles than if another material was used. This allows even persistent encrustations to be removed. The end of the PE washing material's surface life can be observed visually. Over time, the ends of the fibres become thinner and can break off. In this case, the washing material should be replaced (or ideally before it happens).

### **Polyethylene foam**

With excellent cleaning properties, polyethylene foam is the most commonly used washing material for cars today. The material is cut into strips for use and has a closed, soft surface. Unlike PE, polyethylene foam does not leave any scuff marks. Furthermore, the smoothness of the material prevents dirt particles from becoming attached to the strips. It does not have any adverse effect whatsoever on the sensitive car paintwork. Various manufacturers now produce foamed materials with a higher material density, which allows for even more effective cleaning, e.g. when used on vehicles with an angular design. Aside from the impressive cleaning results, polyethylene foam is also a low-maintenance material. It undergoes a natural wear process and should be replaced after 35,000 to 40,000 washes. It is possible to tell when the material strips should be removed, because they become increasingly thinner and longer. This durable polyethylene solution in its various forms is now used in approximately 90% of all car wash bays.

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### **Textile washing materials**

Textile brush materials usually consist of polyurethane. It has an open three-dimensional fibre structure. With this in mind, a high-pressure prewash is important as it prevents dirt particles from building up between the fibres and ensures that sensitive painted surfaces do not become scratched. There are also textile-related washing materials made of polyurethane foam that have smooth, soft surfaces. As with polyethylene foam, it is virtually impossible for dirt particles to build up on the material due to its inhibiting structure. Generally speaking, textile washing materials are excellent at gently cleaning vehicle paintwork, glass surfaces and fabric roofs. Textile solutions are hard-wearing and are even able to polish the surface during cleaning. In comparison to PE solutions, textile washing materials are more expensive to produce. Since they also absorb large amounts of water, textiles are

much heavier than other washing materials when wet. For this reason, a stable load-bearing frame is required for the brushes inside the gantry car wash. Furthermore, the motor output for powering the brushes has to be adjusted to cater for the weight of the wet textile. These materials start to wear after around 20,000 to 25,000 washes, resulting in the disintegration of the textile structures. Synthetic lambskin is a special form of textile material that guarantees a high level of surface gloss and is extremely quiet during cleaning. The disadvantage of this material is that it is sensitive to chemical cleaning agents typically used in washing bays.

## **Microfibre**

Microfibre-based solutions made of narrow, finely structured strips are one of the latest developments in the field of brush materials. In comparison to other textile materials, microfibres are approximately 30% lighter and absorb only around 25% of the water volume. This reduces the power consumption required for cleaning operations. At the same time, this eases the burden on the motors and the system's gear unit and cuts down on noise emissions. Compared to other textile materials, microfibres can also be used in washing bays featuring a lightweight design due to the reduced water absorption rate. Thanks to the high flexibility of the microfibre strips, they are able to clean parts of the vehicle that are difficult to reach. The lightweight material also polishes the surface, thereby providing a glossy paint effect. The microfibres are dirt-repellent due to their closed surface, which minimises the accumulation of limescale and protects the washing material from contamination. This in turn reduces the amount of work required by the microfibres to clean the vehicle. Microfibre-based washing materials have been available on the market since 2012. However, they have yet to become widely used in gantry car washes. The higher cost of purchasing the material is one reason for this.

## **Washing materials and systems require regular cleaning too**

If the car wash is adjusted to accommodate for the brush material and the correct amount of cleaning agent is used, the washing materials effectively clean themselves. Depending on the type of soiling or if the water is hard, a cleaner that meets the requirements of the German Association of the Automotive Industry can be sprayed onto the washing material for additional cleaning purposes. This can be rinsed off after it has been left to soak into the material for a brief amount of time. Furthermore, most manufacturers recommend that washing bays and brushes be cleaned by specialists once or twice a year. Regular cleaning is recommended not only for value retention purposes, but also for aesthetic reasons, i.e. the customer's expectations with regard to the appearance of a car wash.

## **Wear and replacing elements**

The condition of the material and its diminishing ability to carry out a thorough cleaning job indicates when the brush material needs to be replaced. Replacements are generally carried out by the customer service team of the facility manufacturer. It takes just a few hours to replace the brushes and is often combined with other pending maintenance work. When the facility is put into operation

again, several test washes should be carried out to enable the system to be adjusted accordingly (e.g. in relation to the new materials and contact pressure settings). Once done, the facility will be able to provide the same excellent cleaning performance as before. In summary, it can be said that choosing (or disregarding) a particular brush material depends on a host of factors, not least price, cleaning performance and durability. Above all, the facility operator needs to consider the types of vehicle that will be cleaned and the features that will make them stand out from the competition.


## Contact information


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### **Alfred Kärcher GmbH & Co. KG**

Alfred-Kärcher-Str. 28-40  
71364 Winnenden  
Germany

 +49 7195140

 +49 7195142163

 [www.kaercher.com](http://www.kaercher.com)