ESSELENT solutions

Want to reduce the cost of your pretreatment?

The Challenge

Between the bare car body, coming from the body shop, and the bright and shining painted body, lies a whole world made up of complicated and critical processes. Maintaining these processes, securing product quality and offering sustainability is the challenge.
Esselent Solutions helps you to meet this challenge.

Deal with the contaminants

The major factor which affects the pretreatmentprocess and product quality is contamination with oil and dirt, carried in with the car bodies. Esselent Solutions deals with this contamination.

With more than 25 years of experience in this field, you can rely on us to deal with the contamination in your pre-treatment. For that we use our own products; Suparator®, Q-Filter® and Q-Mag®, all specifically developed for this type of application. And to optimally integrate these products with your degreasing stages, we engineer the most suitable configuration which ensures the contaminants 'oil and dirt' are effectively removed from the process.

And the good thing is, we are so convinced that it will work that we guarantee the performance. And if you are not satisfied with the results, just give us a call and we will solve it.

How we deal with contaminants

Dumping a degreasing bath is a very common approach to keep the contamination below acceptable levels. Clearly an expensive solution but it also allows contamination to increase in between the dump cycles, driving cleaning quality from perfect to barely acceptable.

With our separation devices we remove contaminants from your degreasing in real time. As soon as contamination levels start to increase, the system starts removing oil and dirt from the process at the same rate they are carried in with the car bodies. The cleaning quality is no longer affected by the contamination; dumping is no longer necessary.

How we deal with sustainability and cost reduction.

Effective bath maintenance and contamination control is the key. Our approach on quality improvement and optimization by removing contaminants, also results in many positive side effects. One of them is the reduction of water consumption, which is becoming increasingly important. But not only water usage is reduced, all factors within a cleaning process are positively

ESSELENT solutions

For example, with the help of a Suparator® system, the oil content is significantly reduced and it is also continuously kept at this low level. A case study shows that this enables the use of low-temperature chemistry, which lowers the cleaning temperature and thus saves energy costs.

We can help you in taking your responsibility, because we can offer the solution: the combination of quality improvement, cost reduction and reduction of your environmental footprint.

New plants

For new plants we get involved at a very early stage to discuss the contamination control measures in degreasing with both the system integrator and the client. For everything that is directly relevant for contamination control, we advise them in what equipment to use, how to interconnect it, how to design certain details of the tanks and how to run the piping.
We support equipment manufacturers with advice, review drawings and we calculate construction parts and piping where necessary. Everything to optimally integrate the separation equipment with the degreasing process.

Plus, we provide all necessary support for the start-up and operation of the system.

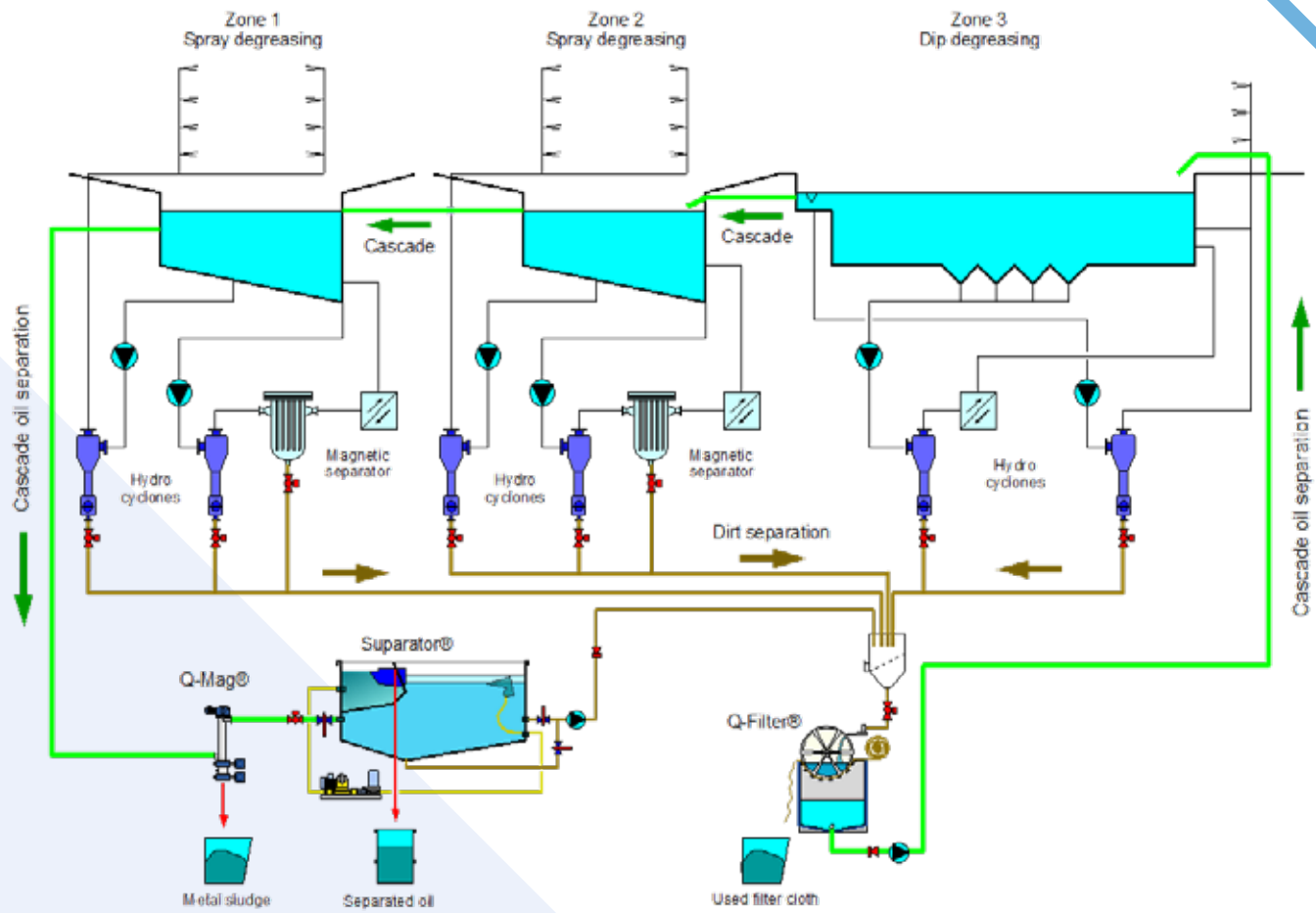
Existing plants

In old automotive plants oil separation and filtration if any, remove only a part of the contamination.

Although the plants are not designed to remove contaminants during normal production we can implement the same concept we use for new plants in these existing plants too. Without major modifications. During one or more site audits we study the existing plant in detail, discuss how the integration can be done and work out a proposal.

For the modifications and the installation of our equipment we prepare a specification with all the necessary details, calculations and sketches.
During the realization of the project, done by a house contractor or one of our installation partners, we closely monitor the work being carried out and provide all the necessary support.

Finally we do the start-up, training and we support the client in the operation of the system.



Integration

The image above shows according to our views, a typical example of a solution for the pretreatment stage of an automotive paint line.

The integration of our equipment, in such a way that all contamination reaches the separation devices, is 50% of the solution. The right integration is the essence of every solution we provide and is based on over 30 years of experience. We thoroughly analyze every process individually and advise on how and where to install the equipment. We analyze existing flow patterns and make calculations and specifications of overflow weirs, piping diameters and return headers. We also specify necessary improvements.

For effective bath maintenance we use a closed-loop cascade from the degreasing baths to our Suparator® oil separator. The Suparator® System returns the media to our Q-Filter® active vacuum filter, so dirt taken from the bath surface top layer is also filtered out. The Q-Mag® magnetic separator is positioned before the Suparator® to take out small ferritic particles which further improves oil separation.

Concentration equipment like hydro cyclones, magnetic separators or back flush filters are used to get a concentrated flow from the main flow, containing a high concentration of dirt. This flow of so called 'black water' is also discharged to the Q-Filter®. The 5µm high efficiency filtration guarantees that it is safe to return the medium to bath 2 or 3 to run the cascade.

This is only possible due to the high efficiency of 5µm of the Q-Filter®. A standard band filter has an efficiency of up to 50µm in the best case. That means that particles smaller than 50µm are returned to the process, eliminating much of the effect of concentration equipment. But do you know that 50% of all particles in a degreasing zone are smaller than 50µm! These are simply not removed with a standard band filter. Q-Filter® does remove them, down to 5µm.

There is a synergy between Q-Mag®, Suparator® and Q-Filter®. Especially Q-Filter® as the last step, significantly improves the total efficiency of bath maintenance. The three devices enhance each other's efficiency which leads to significant cost reduction and increase of sustainability.

ESSELENT solutions

Oil separation

There are many oil separators and all of them separate oil to some extent. But for automotive degreasing baths it is essential that the oil separator is able to remove oil quickly and effectively, regardless the high contamination levels.

That is what Suparator® is designed for. It takes media from the surface of the bath and treats it in multiple steps to concentrate oil. It takes the oil out of the process completely. The media which is returned to the bath contains minimal oil.

Dirt separation

Filtration in automotive degreasing stages is usually done with filter bags or filter cloth with an efficiency of 50µm or worse. But, as stated earlier, 50% of the dirt particles found in these stages are smaller than 50µm!

A Q-Filter® active vacuum filter can use filter cloth with an efficiency of 5µm or better, and still keep your filtration cost low.

The complexity of contamination

When speaking of contamination in automotive degreasing stages, we usually think of oil and metal particles. But reality is somewhat more complex.

Oil is more and more replaced with 'dry-lube' which solidifies at reduced temperatures and is much more difficult to remove.

Metal particles can be iron but also aluminum which cannot be removed with magnets. Aluminum, which is increasingly being used, has a considerably lower density which makes hydro cyclones less effective.

To address the variety of conditions we come across in automotive plants, we can complete our solutions with various options like Q-Mag® automatic magnetic separator, heating, a rake skimmer to remove floating matter or pre-coat filtration to improve the filter efficiency down to 2µm. With these options we deal with difficult contaminations as well.

Esselent Solutions b.v.
Groenewoud 25A
NL-5151 RM Drunen - The Netherlands
Phone: +31 73 2200030
General: business@esselent.eu
Support: support@esselent.eu

www.esselent.eu

product warranty expertise system

More information? Contact us at: