A FAURECIA COMPANY

EXTENDED SERVICE INTERVALS • OPTIMIZED SYSTEM VOLUME

DIESEL PARTICULATE FILTER

FOR HIGH SPEED & MEDIUM SPEED ENGINES

SWISS MADE
Hug Engineering is providing specific coated filter substrates for different applications in order to achieve best emission results with a long lifetime. Our DPF differ in porosity, coating, and substrate used:

**FILTER SUBSTRATES**

1. **SILICIUM CARBIDE**
   - Our SiC, catalytically coated oxibound silicium carbide filters (SiC) are certified and patented.
   - PM REDUCTION RATE: up to 99%
   - BLACK CARBON REDUCTION RATE: > 97%
   - CERTIFICATION: LRV

2. **FA2**
   - The patented FA2 DPF is based on a specific ceramic substrate formula with a catalytically active coating. This filter is intended for high operational hour in which black carbon reduction is desired.
   - BLACK CARBON REDUCTION RATE: > 97%

3. **FA1**
   - The coated FA1 DPF is specifically designed for stationary applications.

**TECHNICAL SPECIFICATIONS**

Consciousness towards environmental issues is increasing worldwide and diesel engines are always in the focus. A Diesel Particulate Filter (DPF) is designed to remove particulate matter (PM) from diesel engine exhaust gas. In the automotive industry, this is state of the art technology. With a removal rate up to 99% of PM emissions in a DPF, PM emissions from diesel vehicles have enormously improved compared to 1980.

For large engines used in ships, locomotives, powerplants, or gensets, these automotive filters can not simply be upscaled and installed. The requirements towards filtration of exhaust gases in industrial engines are significantly higher due to long lifetime, different fuel qualities, lube oil consumption, etc. Hug filters are designed to match these specific requirements.

Because soot is known as a major pollutor for global warming, it is predictable that local and other environmental regulations are increasing and become more strict in the future.

**OPERATING PRINCIPLE**

Exhaust gas filtration involves separating unburnt soot particulates (amorphous components) as well as ash (amorphous, completely burnt exhaust gas components) from the exhaust gas mixture on a filter surface. The unfiltered flow of exhaust gases from the diesel engine containing soot and ash particulates is forced through a porous filter wall. This is where the particulates are trapped. The wall pore size and the wall porosity of the particulate filter is kept as large as possible in order to minimize counter-pressure.

**REGENERATION STRATEGIES**

Soot particulates trapped during the filtration can be burnt off in the filter by regeneration. There are two regeneration possibilities:

- **PASSIVE**: With the aid of oxidation catalysts and catalytic coating in form of a continuous regeneration
- **ACTIVE**: Periodic, automatic regeneration with the aid of a burner

**Application** | **cpsi** | **Substrate** | **Coating**
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Marine Filters | 100 | SiC, FA2 | V-based
Yacht Filters | 100 | SiC, FA2 | V-based
Locomotive Filters | 100 | SiC | V-based
Stationary Filters | 100 | FA1 | Alkali-based

* **cpsi** = cells per square inch

High resolution SEM images of ceramic filter walls in cross-section
FILTER CARTRIDGES

A big advantage of our filter cartridges is the compact size. This makes customized layouts possible and service easy. We provide different cartridge types and sizes.

The appropriate cartridge is depending on the application, the housing and your engine.

STATE OF THE ART LABORATORY

Our experts, well equipped laboratories and the long history in filter development and production are the basis of our success.

We can do all examinations of our filters inhouse, such as measuring particle size distribution and specific surface, porosity and pore size distribution, filtration efficiency, thermal expansion, mechanical strength, mechanical bending, pressure resistance, etc.

CERAMIC FILTER PRODUCTION

Hug Engineering is successfully developing Diesel particulate filters since 1983. We are a 250 headcount company that is specialized in filter development, filter production and supplying complete emission reduction systems. Our core competence is the development and production of PM filters for large engines. This includes the substrates, the regeneration systems and the controls for best emission results combined with a long lifetime. Swiss made.

More than 45,000 cartridges and 35,000 round filters in different applications, such as yachts, trains, trucks, and buses have been sold already.

GOOD TO KNOW: FUEL QUALITY

The fuel quality has a high impact on the functionality of a DPF. Inferior fuel standards require a different design of the filter, e.g. catalyst, porosity, etc. Hug filter can cope with higher sulfur content in the fuel, e.g. fuel quality ISO 8217 DMA/DMB.

GOOD TO KNOW: SERVICE LIFE

One reason why industrial filters can not be compared to automotive filters is the service life. A comparison:

Automotive Filter: 180,000 km = 3000 hours

Hug Filter:
1st/2nd service: 3000/6000 hours = onsite dust blowing
3rd service: 9000 hours = first reconditioning
4th/5th service: 12‘000/15‘000 hours = onsite dust blowing
6th service: 18‘000 hours = second reconditioning
7th/8th service: 21‘000/24‘000 hours = onsite dust blowing
End of Live: 27‘000 hours

In other words: A Hug Filter has a 9x longer lifetime compared to a car engine life - even under worse conditions!
DIESEL PARTICULATE FILTER
FOR HIGH SPEED & MEDIUM SPEED APPLICATIONS

YOUR BENEFITS

• Effective PM (particulate matter) removal up to 99%
• Black carbon reduction rates > 97%
• Automatic filter regeneration by Hug burner system or oxidation catalyst
• High durability
• Specific filter for different industrial applications
• Swiss Made

WITH OUR LONG EXPERIENCE, HUG FILTERS ARE SAFE AND RELIABLE WHEN IT COMES TO LARGE ENGINE APPLICATIONS.

TRUST THE SPECIALIST FOR EXHAUST GAS PURIFICATION - we reduce emissions