



We care for air.

Advanced Diesel Particulate Filters And Systems For Exhaust Cleaning



The Company

HUSS LLC in Palm Springs



HUSS LLC in Palm Springs



The Company

German Background and History



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HUSS Umwelttechnik in Germany

- founded in the 1920's
- focussing on diesel particular filter systems since 1985

HUSS LLC (Palm Springs and New York)

- 2005-2006 Market Research
- Nov. 2006 ARB Verification for MK-System
- Jan. 2007 Legal Foundation of HUSS LLC
- April 2007 Opening of Warehouse Location in Palm Springs
- Nov. 2007 Opening of Warehouse Location in NYC



The Products

Overview over HUSS regeneration strategies*:
For every application a solution that fits!



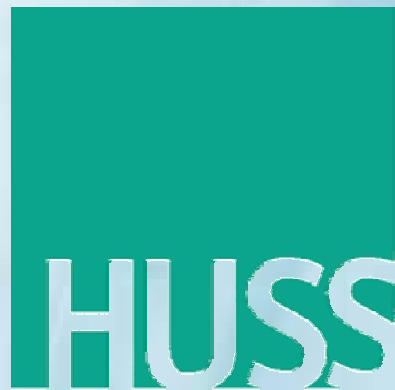
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in verification process



*all HUSS products are modular designed, made of stainless steel, use a SiC high performance ceramic filter, and have a filtration efficiency of 99%





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**Active Diesel Particulate
Filter System with
Diesel Burner Technology**



The Products

Facts and Figures



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1. Technology proven on an **installed base** of over **20,000** DPF's (Europe and Latin America)
2. Installed base consists of ➡ single **and** dual systems
3. Current filter model (active MK Filter System) is in the market since **7 years**
4. Technology know how and experience gained in off-road environment. The company came from off-road and then enlarged their base to on-road.
5. On the above mentioned installed base **not a single filter system** caused:
 - any personal injury
 - exploding filter system and/or engine
6. All HUSS DPF's already reach and fulfill **Tier 4** and also **Tier 5** requirements.










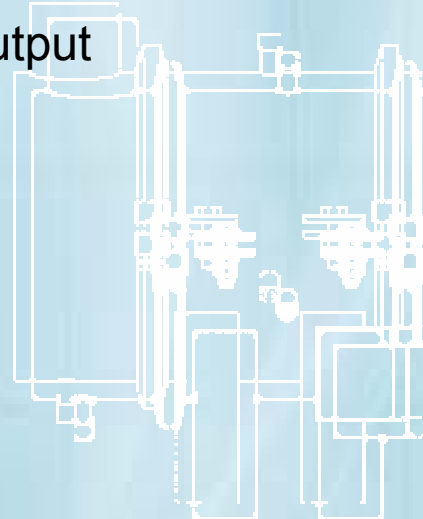
Product range – closer look to the systems: The MK series: active diesel burner technology



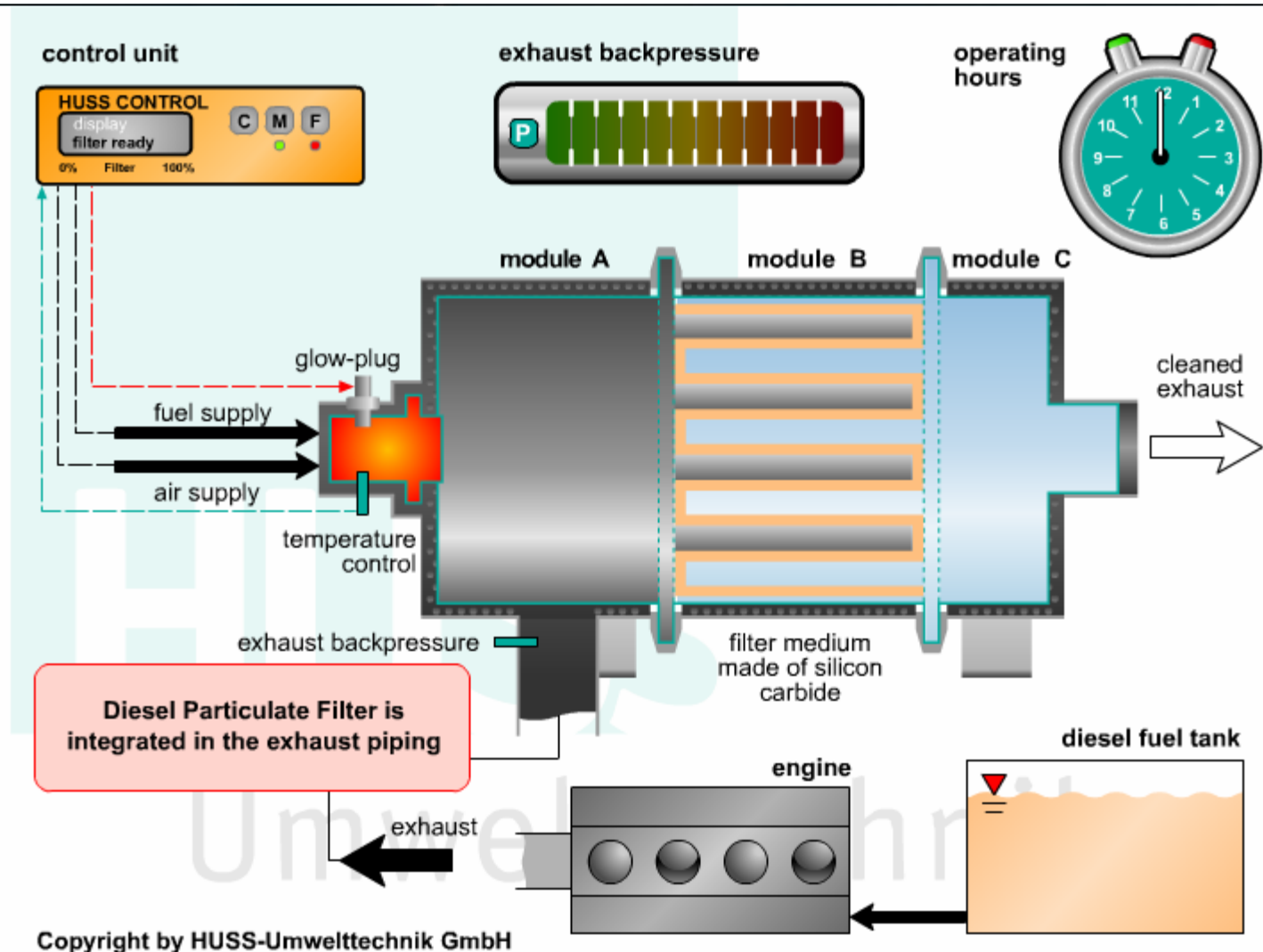
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**Very fast regeneration between 8 min and 35 min.
No need of external power sources**

-  powerful diesel burner with 22 kW output
-  filter medium is SiC
-  modular design
-  different exhaust in- and outlets
-  integrated silencer module
-  data-logging function
-  controlled regeneration by the HUSS control unit



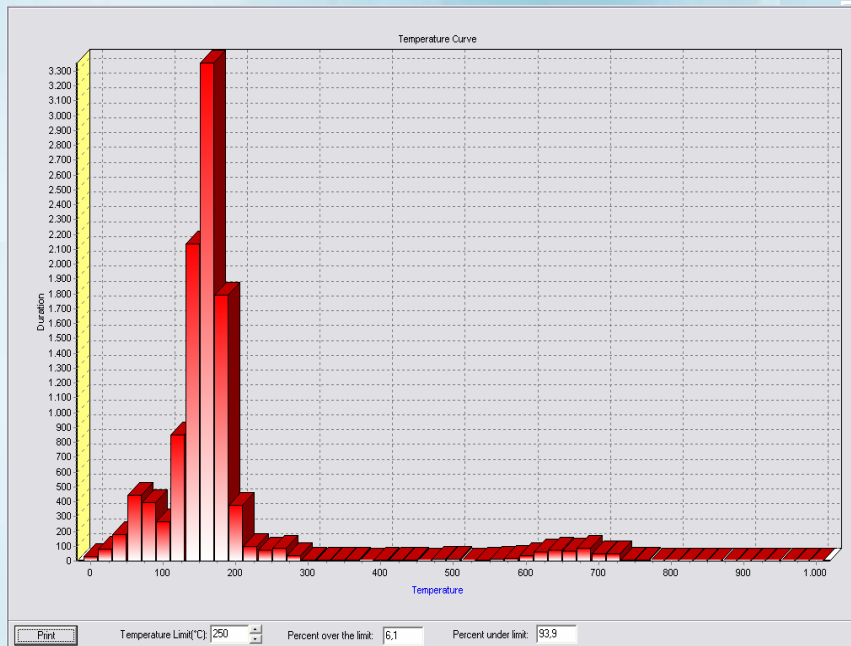
The functionality of a diesel particulate filter – in motion



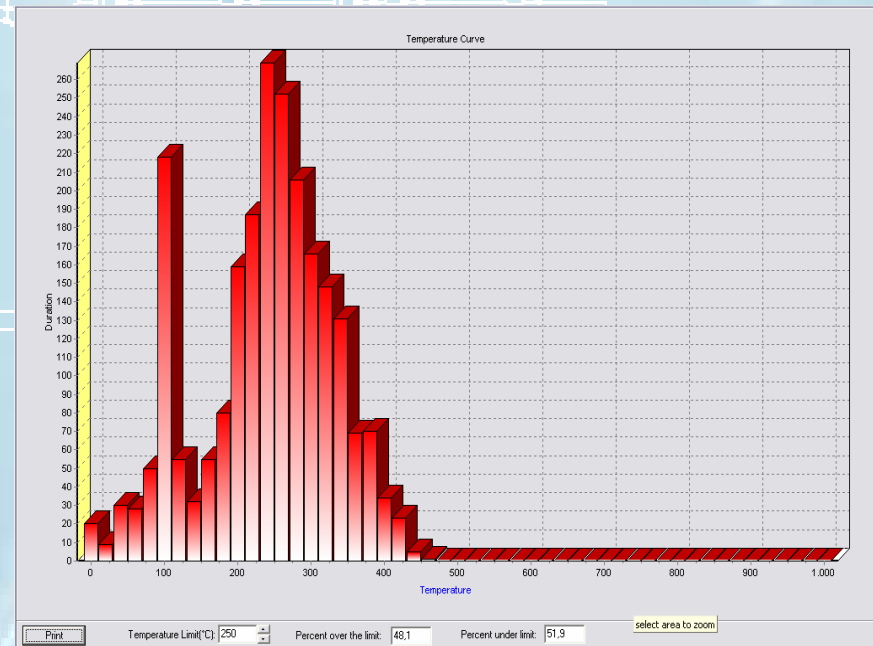
Exhaust gas temperatures – a specific criteria for construction machines and municipal vehicles

The records of the Data-Logger are showing the temperatures

**Example of a „normal“ working „cold“ machine:
in 94% of the time below 250°C**



**Example of a „hard“ working „cold“ machine:
still in 54% of the time below 250°C**



The MK-System: Diesel Burner Technology

Independent, fast and easy



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The MK-System is **ideal** for vehicles with **low exhaust gas temperatures**

This is typical for **construction** machines, **mining** applications, **municipal** vehicles and **public transportation**

The filter efficiency is **99%** and **independent** from any external energy sources

The HUSS-Control is supervising and controlling the process of soot loading and regeneration



Differences between the advanced HUSS MK-System and the current DPF technology in the U.S.



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HUSS' MK-System (active DPF)

- runs with any fuel (no need of ULSD) ☒
- achieves 99% PM reduction ☒
- no replacement needed
(product life cycle: 15 to 20 years) ☒
- no need of an specific level of exhaust temperature ☒
- advanced safety control system ☒
- annual cleaning (no need of oven) ☒
- regeneration must be done in non-operation mode
- also suitable for engines before 1994 ☒

Current available DPF technology

- current DPFs need ULSD fuel
- achieve 80% to 90% PM reduction
- replacement of filter after 5-7 years
- requirement of high exhaust temperatures
- annual cleaning (need of ovens)
- need of electricity source for regeneration
- not working on engines before 1997

BAT



References: Thousands of filter systems in „on“- and „off-road“ applications



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Forklift Trucks		Construction Machines		Heavy Duty Vehicles
Jungheinrich	OEM	Atlas Terex	OEM	Bucher Schörling
Still	OEM	Liebherr	OEM	Multicar
Mitsubishi	OEM	Caterpillar		Hako
Caterpillar	OEM	Neuson-Kramer		Liflux
Nissan		CNH		Iveco
Hyster		Volvo		Mercedes
Toyota		Sennebogen		MAN
Yale		Manitou		
Terra		Bobcat		



The Products

Installations On Large Engines (1)



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HUSS
Umwelttechnik

HUSS
Umwelttechnik

500
ELECTRONIC

623F



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KA



ZEPELIN
www.zeppelin.de

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CAT

M318C MH

CAT





HUSS
Umwelttechnik

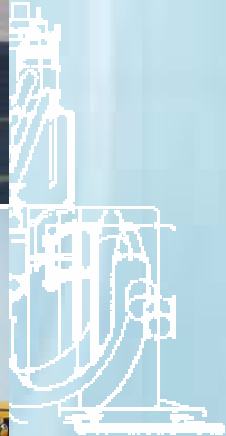
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References: Buses and Municipal Transportation



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The Products

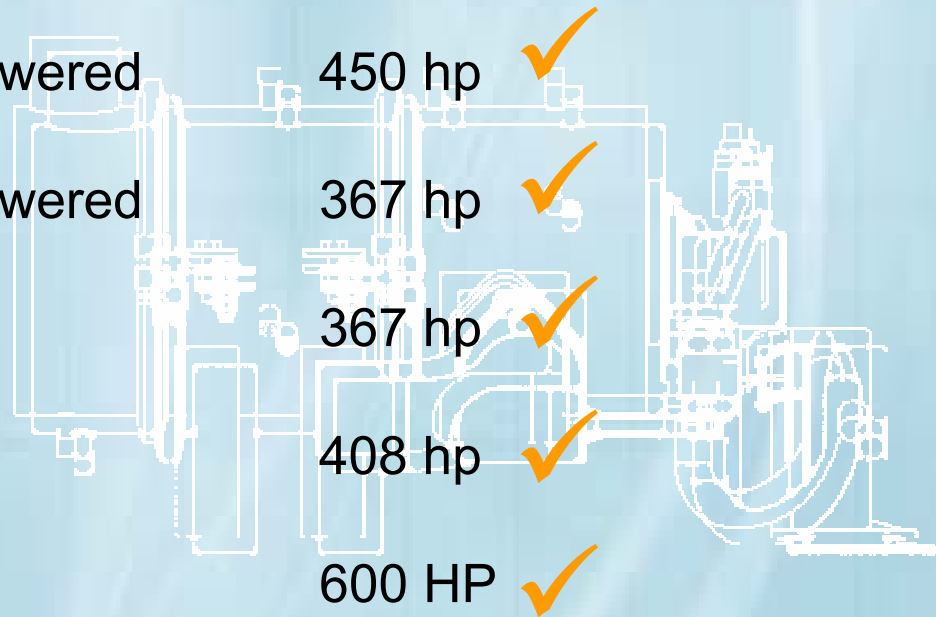
Installations On Large Engines (3)



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Examples of HUSS installations in the US

- Caterpillar 633 D, 1979, repowered 450 hp ✓
- Caterpillar 623 B, 1976, repowered 367 hp ✓
- Caterpillar 623 F, repowered 367 hp ✓
- Caterpillar D400 E, 2001, 408 hp ✓
- 350T Payhauler Tier 3 600 HP ✓



Company

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HUSS Authorized Installers

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Product Finder

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Toll Free Service

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The HUSS Support

Our Commitment to California

Our Capabilities and next steps



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1. HUSS Installer Network

Oct 2007

3 in California

1 in New York

Feb 2008

approx. 10 in California

2. Warehouse Capability:

for up to 500 Filter Systems in Stock

3. Delivery Capabilities:

July 2007

50 DPF's / month

Jan. 2008

200 DPF's / month

4. East Coast Location (with same capabilities)

11/2007

5. US Employment in 12 months:

40-50 Employees





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