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MASH®: Fibre-free Sound Absorption for specific Process Conditions based on a metallic deep Structure

Dr. Nicolas Komorek/Sabine Dettmar

DAGA 2018 MÜNCHEN

Garching, 20 March 2018

Introduction
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Technology
Engineering and manufacturing of functional solutions of metal mesh

Functions
Filtration, dispersion, sound absorption, heat absorption, precision assemblies

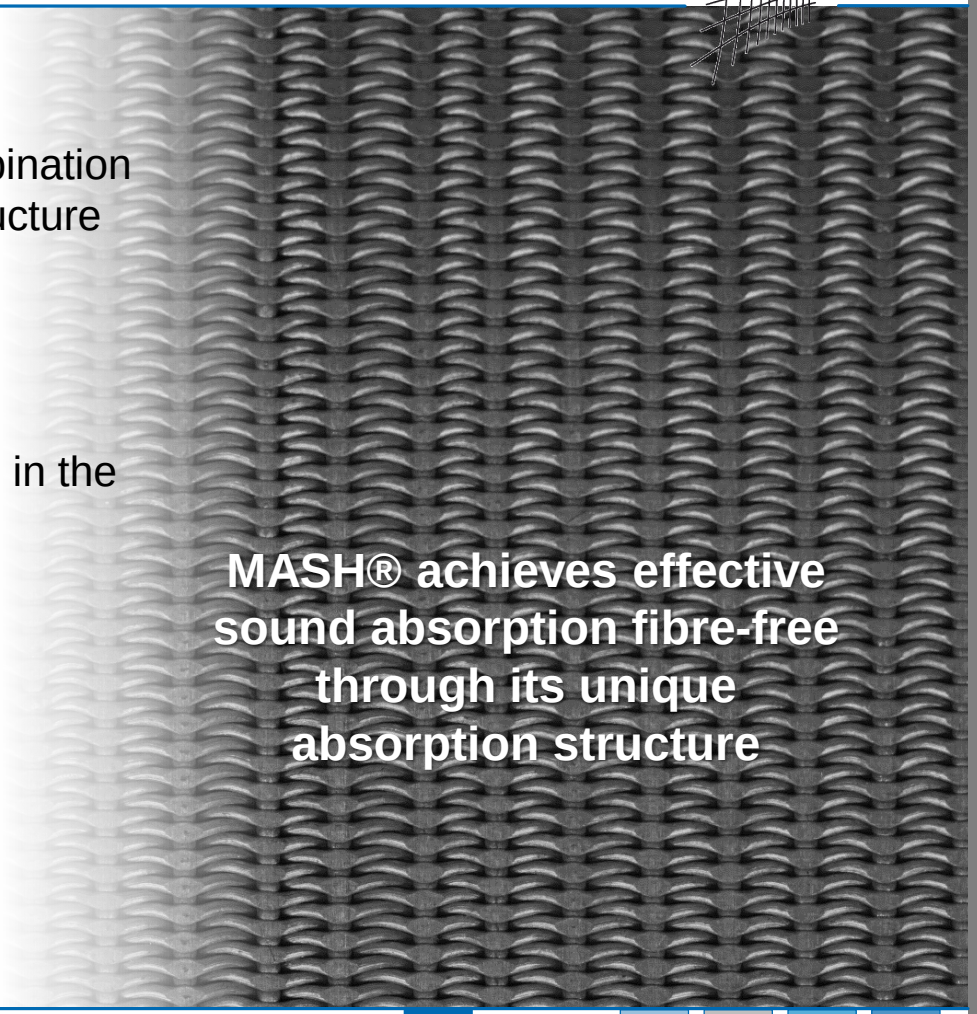
Development
Development partner for industry customers from various sectors

fteu®
Headquarters in Germany, further locations in P.R. China and the Czech Republic, global sales reps.

Concept
Fibre-free sound absorption

1-material-solution
Fibre-free sound absorption through combination of perforated surface and interference structure respectively connection of absorber and resonator properties

Defined 3D-strucutre
An effective absorption stucture is defined in the third dimension



MASH®
Material Absorbing Sound and Heat

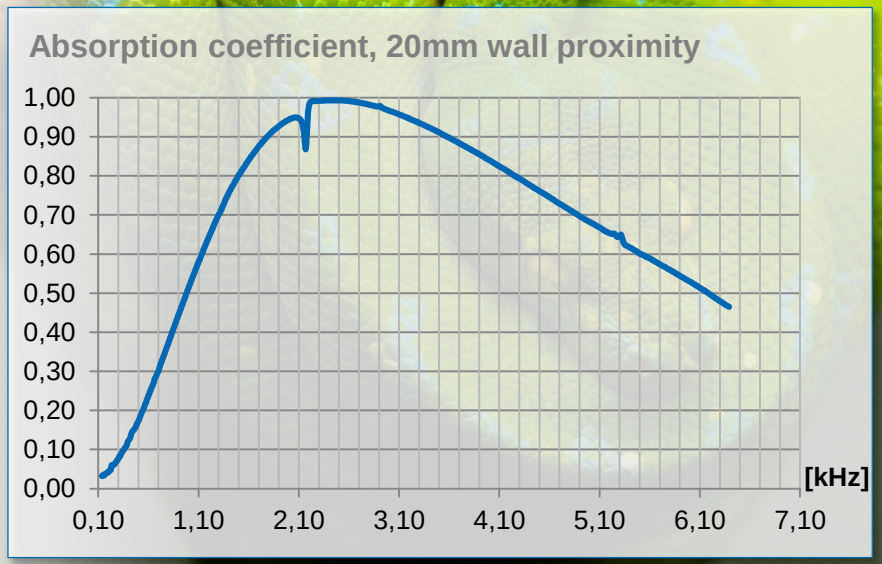
Fibre-free
- Long-lasting
- Robust
- Cleanable

Broadband
- Absorption starting <1kHz
- Absorption max. at 2,4kHz
  (Kundt tube; 20mm wall proximity)

Metal
Use of a variety of different speca. for defined properties (i.e. weight, heat, chem. resistance)

Moldable
Sheet metal like molding (pleating, deep-drawing) with affection sound absorption

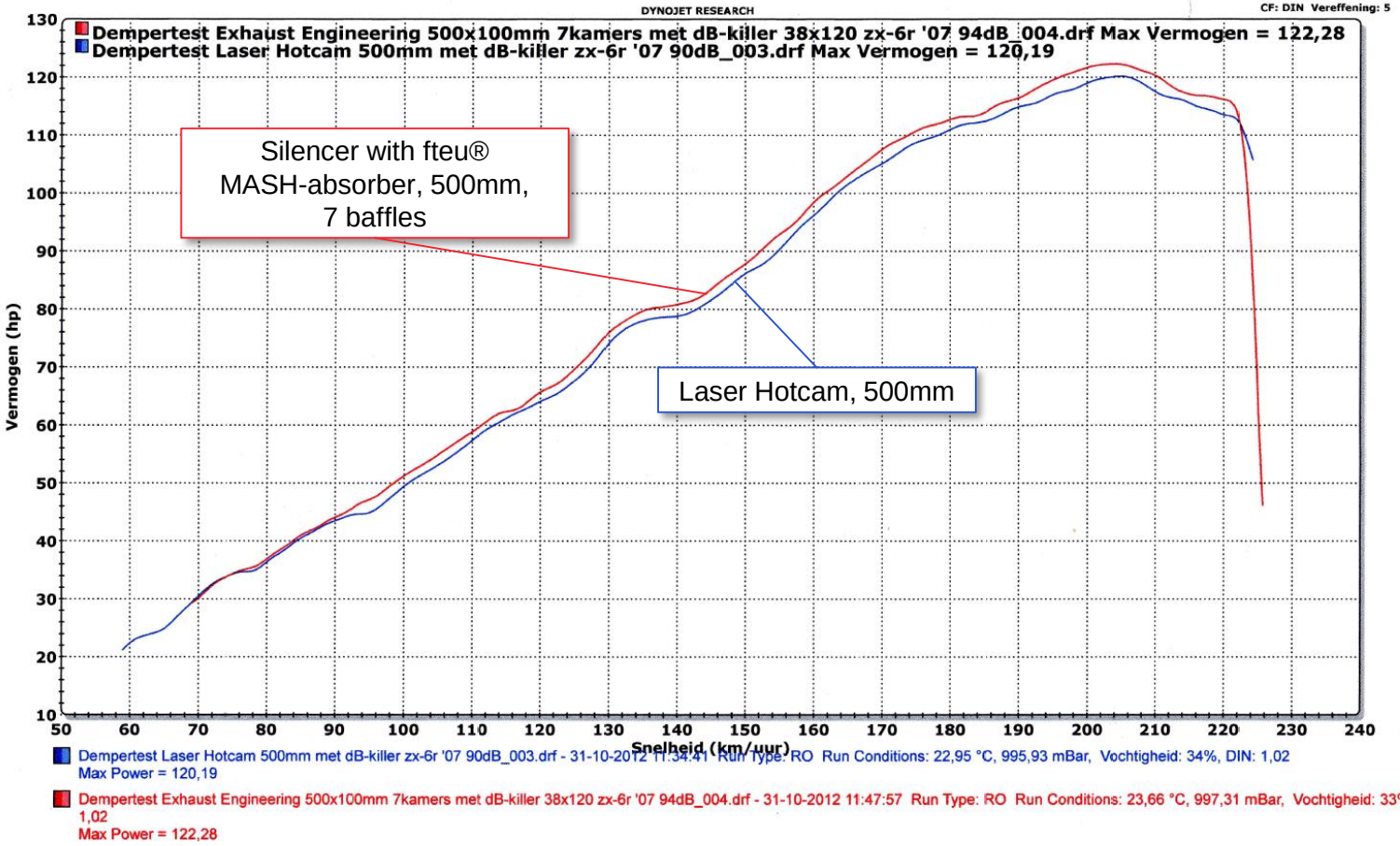
MASH® enables broadband sound absorption in specific process conditions



MASH® example of use

Test bench results of motorbike

Test bench results power (Y) by speed (X)



Measurements were carried out with our acoustic partner Exhaust Engineering at Dynojet Research

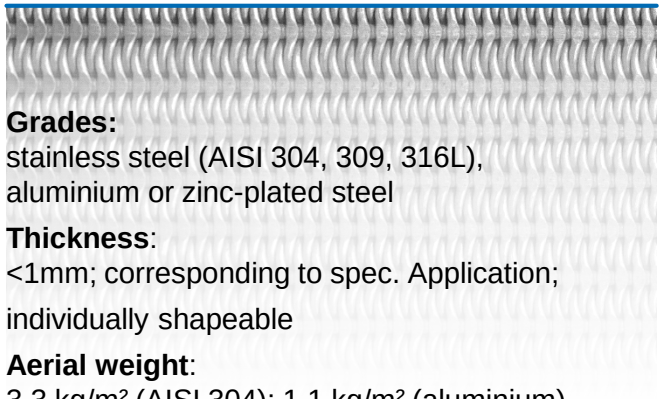
MASH® data sheet
Fibre-free absorption technology

MASH®: fibre-free – metallic – deep-structured (3D)

MASH® - Material Absorbing Sound and Heat is an fteu®-technology for fibre-free sound absorption. MASH® uses metal mesh structures as material basis. It functions effectively for sound absorption through its unique defined 3D-deep-structure – broadband and also for frequencies < 1 kHz. As fibre-free and metallic absorber material MASH® is cleanable, durable, explosion-resistant and fireproof. MASH® is manufactured by fteu® in defined qualities and monitored production processes.

For the application MASH® is individually configured as part of an entire sound absorber assembly. Depending on the actual application environment, a MASH® specification is selected to address the relevant sound spectrum for that specific application – i.e. for broadband sound absorption of for effective absorption of sound emissions from industrial machinery/processes.

Material



Grades:
stainless steel (AISI 304, 309, 316L), aluminium or zinc-plated steel

Thickness:
<1mm; corresponding to spec. Application; individually shapeable

Aerial weight:
3.3 kg/m² (AISI 304); 1.1 kg/m² (aluminium)

Application/acoustics

Shape:
laminar material, as pipe or in individual shapes; flat or pleated

Flow resistivity (ISO 9053):
230‘800 Pa s/m²

Perforation rate:
0.152

Tortuosity:
1,05

Material analysis conducted by

TU Delft

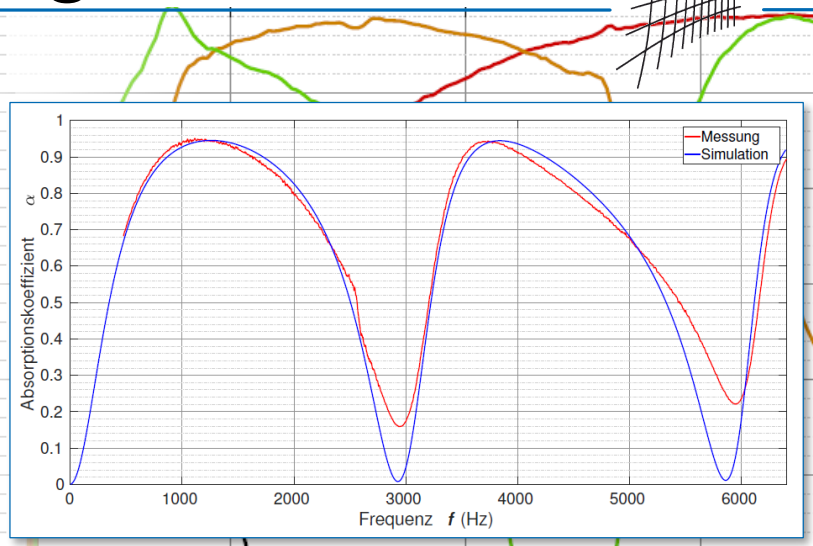
TU WIEN TECHNISCHE UNIVERSITÄT WIEN

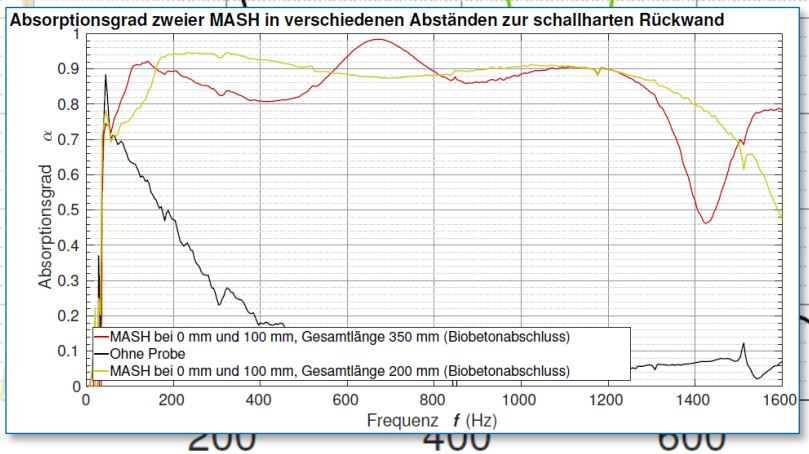
MATELYS Research Lab

Sabine Dettmar
Project Lead Sales
sde@fteu.de
+49 (0)2452 9606-28

MASH®
Design & Dimensioning

- Analysis of different specifications with MASH® technology
- MASH® can be calculated and simulated
- MASH® functions broadband and also frequency-independent using it multi-layered respectively multileveld
- Precise silencers with MASH® technology is possible





Ergebnisse TU Wien

MASH®
Example of use

- First application for a sliencer after development phase
- Implementation in funnal technology; Transport of fluids with moisture load (combustion)
- Pipe sound absorber with several resonance chambers

Steegmüller Kaminoflex made in Germany

MASH®
Example of use

- Complete design and construction at fteu®
- Performance comparison of 3 design variants
- Prototyps for different MASH® specifications make „fibre-free“ easy to experience
- Project support up to series launch

KAESER KOMPRESSOREN

MASH® potential
Tech. fields for increased function

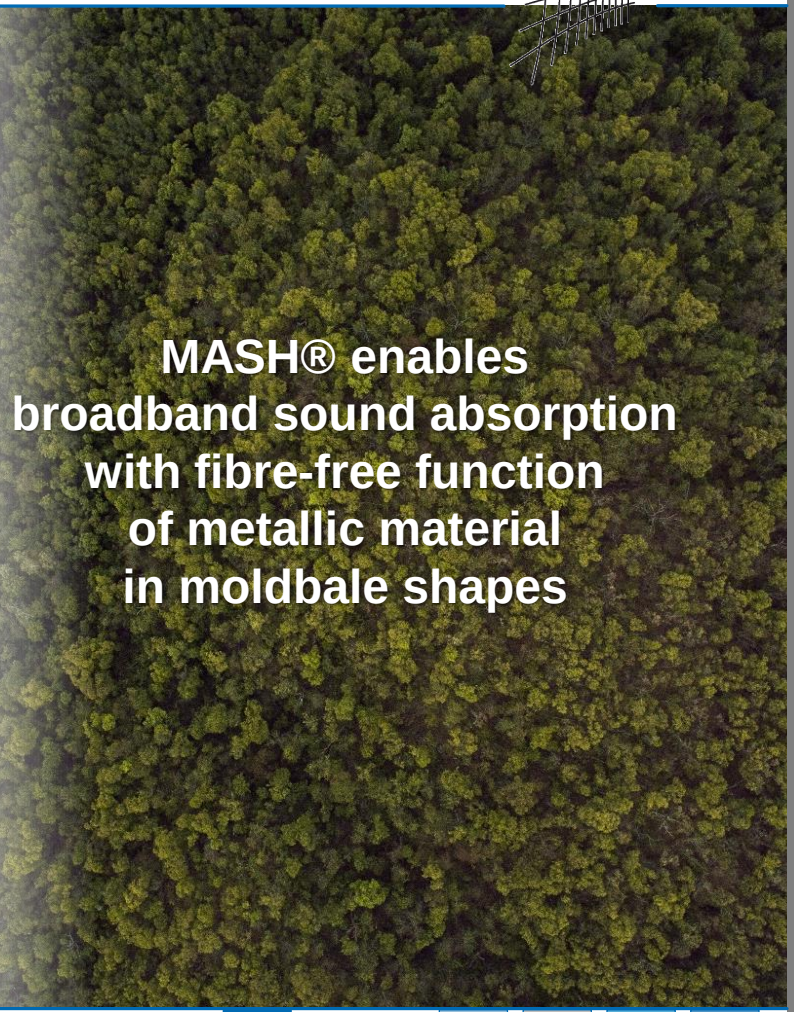
Exhaust gases/high humidtiy
Applications with corrosive process conditions

Explosion prevention
Applications with high explosion risk

Hygiene
Applications with high cleanability demands (food industry, health/medical, optical)

Impure/dirty conditions
Applications with high cleanability demands (manufacturing industry)

Molded parts
Applications with defined demands regarding available/limited space



Technical partner
Your contacts at fteu®

Dr. Nicolas Komorek
Managing Director

☎ +49-2452-97606-16
+49-2452-97606-99
✉ nko@fteu.de

Sabine Dettmar
Project Lead Sales

☎ +49-2452-97606-23
+49-2452-97606-98
✉ sde@fteu.de

filtertechnik.Europe GmbH & Co. KG

Gladbacher Str. 21
D-52525 Heinsberg
Germany

☎ +49-2452-97606-0
+49-2452-97606-98
✉ info@fteu.de
www.fteu.de