

SoundPro - Reduction of aeroacoustics in fuel cell air paths



- ✓ Broadband damping
- ✓ High efficiency
- ✓ System competence

MANN+HUMMEL SoundPro

Reduction of aeroacoustics in fuel cell air paths

Technical specification

Performance class	MEDIUM	HIGH	HIGH+
Fuel cell stack power [kW]	~ 30 - 60	~ 80 - 130	~ 150 - 200
Air volume flow* [m³/min]	1.0 - 2.5	2.0 - 6.5	3.5 - 10.0
3-Chamber design			
Acoustic damping (transmission loss) [dB]	~ 18		~ 15
Frequency range [Hz]		1.150 - 5.000	
4-Chamber design			
Acoustic damping (transmission loss) [dB]	~ 21		~ 15
Frequency range [Hz]		800 - 5.000	
Installation position		air intake path: horizontal and vertical exhaust path: vertical (limited)	

* $T = 20\text{ }^{\circ}\text{C}$ | $p = 1013\text{ hPa}$ | $\phi = 50\%$ rel. humidity

Product features and concept advantages

- Reduces inlet noise and noise radiation of ducts (noise source is mainly the compressor)
- Design suitable for fuel cell cathode intake air path low pressure and high pressure side

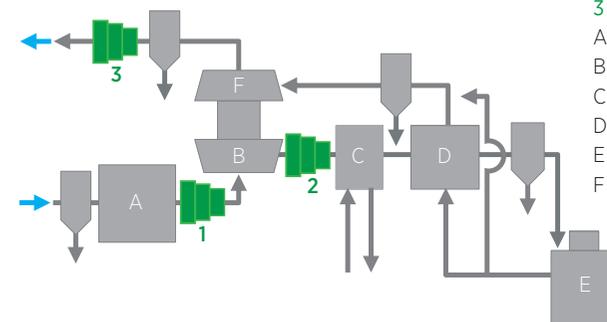
Material and resistance

- PA rapid prototyping parts:
 - $T = 85\text{ }^{\circ}\text{C}$ (long term, operating)
 - Burst pressure $> 10\text{ [bar]}$ @ $20\text{ }^{\circ}\text{C}$

MANN+HUMMEL memberships and partnerships in e-mobility and fuel cells:



Air path (cathode)



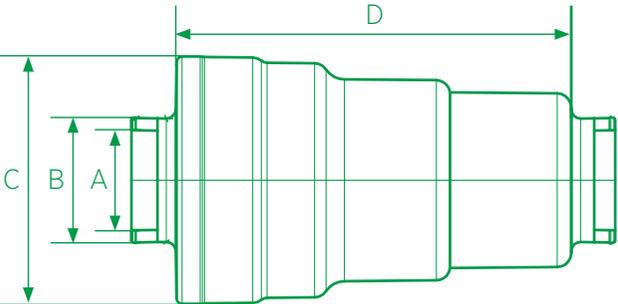
- 1 - Air intake, low pressure side
- 2 - Air intake, high pressure side
- 3 - Exhaust (limited)
- A - Cathode air cleaner
- B - Compressor
- C - Cooler
- D - Humidifier
- E - Fuel cell stack
- F - Turbine

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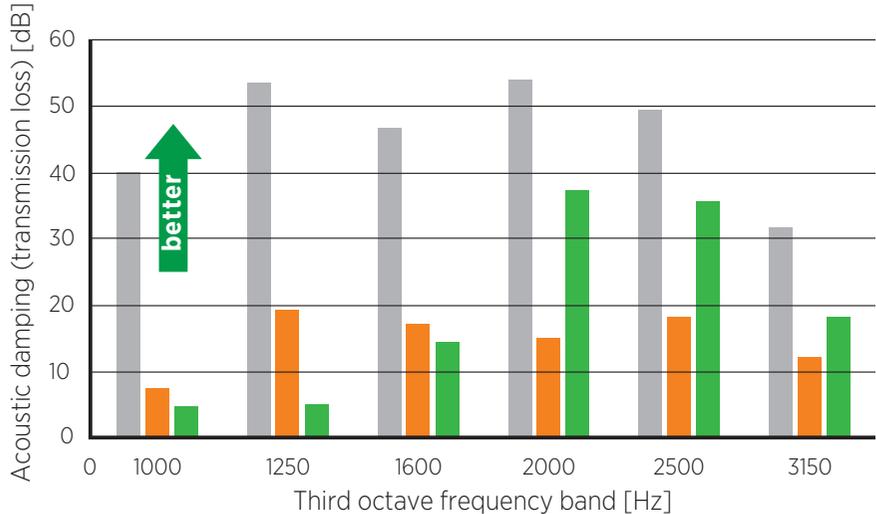
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Dimensions [mm]

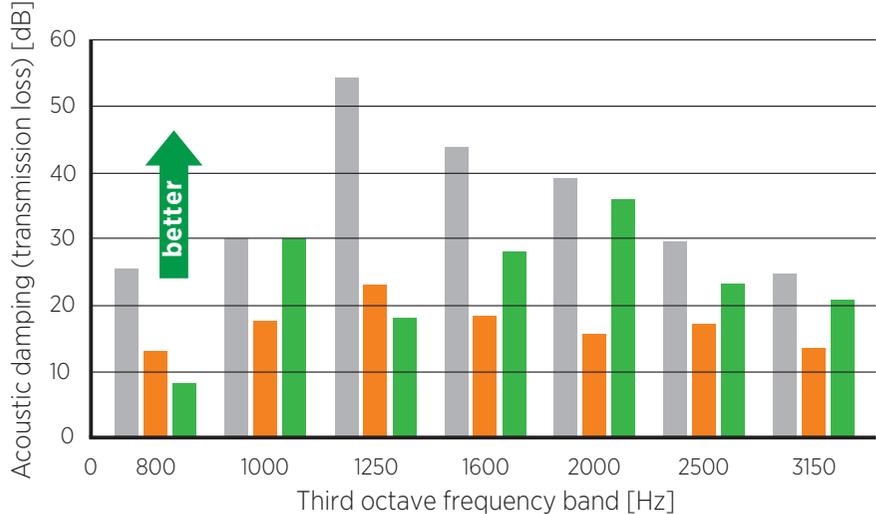
Performance class	MEDIUM		HIGH		HIGH+	
	3	4	3	4	3	4
Chambers	3	4	3	4	3	4
A	35		54		64	
B	44		66		76	
C	117		128	134	155	164
D	238	271	238	271	256	307



Transmission loss curve example
3-Chamber design



Transmission loss curve example
4-Chamber design



Medium High High+



MANN+HUMMEL Contact

Sales

Arnaud Champion
Sales New Products
arnaud.champion@mann-hummel.com
Phone: +33 243 49-7987

Engineering

Adrien Retter
Engineering Acoustics / NVH
adrien.retter@mann-hummel.com
Phone: +49 7141 98-2846



Open the website for more information about products for electrified powertrains from MANN+HUMMEL.



Watch the video of the broad band silencer for fuel cell systems.



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