

WaterPro

Water separator for fuel cells



MANN+HUMMEL WaterPro – Water separator for the protection of components in the fuel cell BOP

Decades of experience with water separation in air intake systems of ICE applications



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



Watch the video of the water separator for fuel cell systems.



Visit our E-Mobility Onlineshop to check our offerings and buy directly.

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

Hydrogen Council

elektromobilität
süd-west



Science for a
moving society

European Clean
Hydrogen Alliance



USHA
UNITED STATES HYDROGEN ALLIANCE



Arbeitsgemeinschaft
Brennstoffzellen
(Fuel Cell Working Group)

EUROPEAN
BATTERY
ALLIANCE | EBA250

brennstoffzelle
BW

Leadership in Filtration

MANN+
HUMMEL

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Product features and concept advantages

- High water mass flow separation up to 40 g/s
- High separation efficiency for a wide airflow range
- Separates different liquid condition types:
 - Water droplets
 - Water wall film
 - Water accumulation and plug flow
- Designed to be freezing resistant
- Continuous water drainage
- Vertical and horizontal design
- Inclination capable up to $\pm 20^\circ$
- Package optimized compact design

Material and resistance

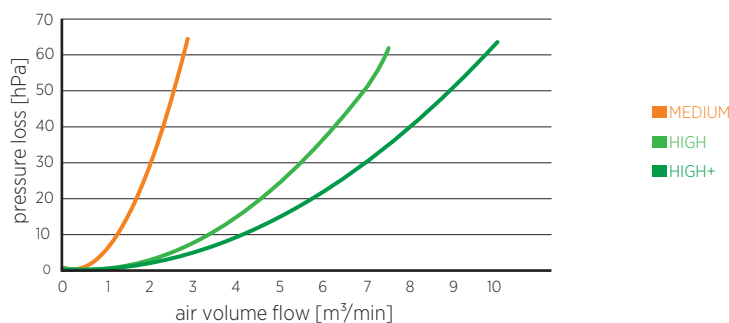
- Rapid part production technology:
 - PA and PP material
 - T = 85°C (long term, operating)
 - Burst pressure $p > 8$ bara @ T = 20°C

* @ Lab condition: T = 20°C | p = 1013 hPa | φ = 50% rel. air humidity
 ** @ Lab condition: Inlet droplet size distribution 10 to 35 to 100 μm
 Efficiency in nominal separator position: vertical/horizontal

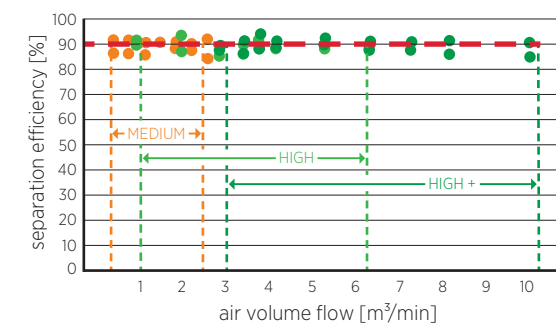
Technical specification

Performance class	MEDIUM		HIGH		HIGH+	
Fuel cell stack power [kW]	~ 30 - 60		~ 80 - 130		~ 150 - 200	
Air volume flow * [m ³ /min]	1.0 - 2.6		2.0 - 6.5		3.5 - 10.0	
Type vertical						
Air volume flow * [m ³ /min]	2	2.6	5	6.2	7	9
Pressure loss [hPa]	≤ 30	≤ 50	≤ 30	≤ 50	≤ 30	≤ 50
Separation efficiency */** [%]	≥ 85		≥ 85		≥ 85	
Type horizontal						
Air volume flow * [m ³ /min]	2	2.6	5	6.8	7	9
Pressure drop [hPa]	≤ 30	≤ 50	≤ 30	≤ 50	≤ 30	≤ 50
Separation efficiency */** [%]	≥ 85		≥ 85		≥ 85	

Pressure loss *



Separation efficiency */**

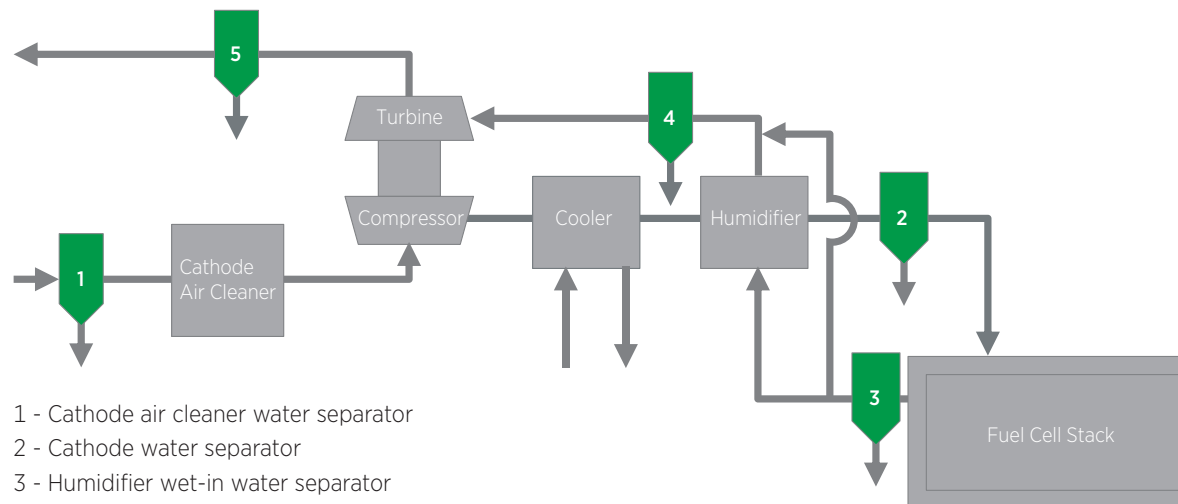


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Dimensions (A/B/C/D/E) [mm]	200/99/44/35/25	200/128.7/66/54/25	260/153.7/76/64/25

Potential positions in the cathode air path

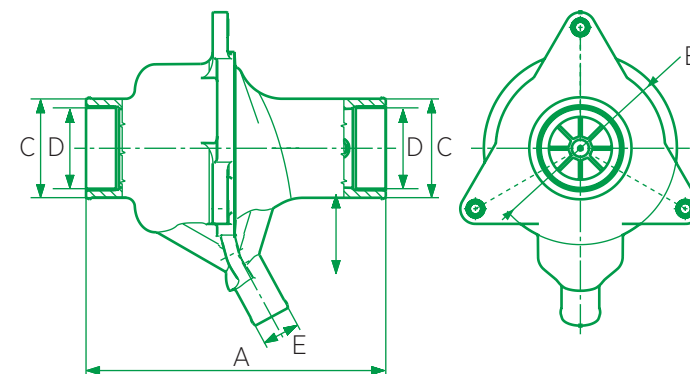


- 1 - Cathode air cleaner water separator
- 2 - Cathode water separator
- 3 - Humidifier wet-in water separator
- 4 - Turbine water separator
- 5 - Exhaust water separator incl. water management system

Installation



Dimensions



- A - Part length
- B - Part diameter
- C - Outer diameter interface inlet/outlet
- D - Inner diameter inlet/outlet
- E - Outer diameter interface drainage port



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