FleXtore II:
50kW Hydrogen Bromine Flow Battery

International Flow Battery Forum 2018, 10 - 12 July, Lausanne

Natalia Mazur[1], Wiebrand Kout[1], Joep Lauret[1], Peter Puttkammer[2], Raphaël T. van der Velde[2], Sebastian B. van Drenth[1], Yohanes Antonius Hugo[1,3], Friso D. Sikkema[1]

[1] Elestor b.v., Arnhem, The Netherlands.

[2] Witteveen+Bos, Deventer, The Netherlands.

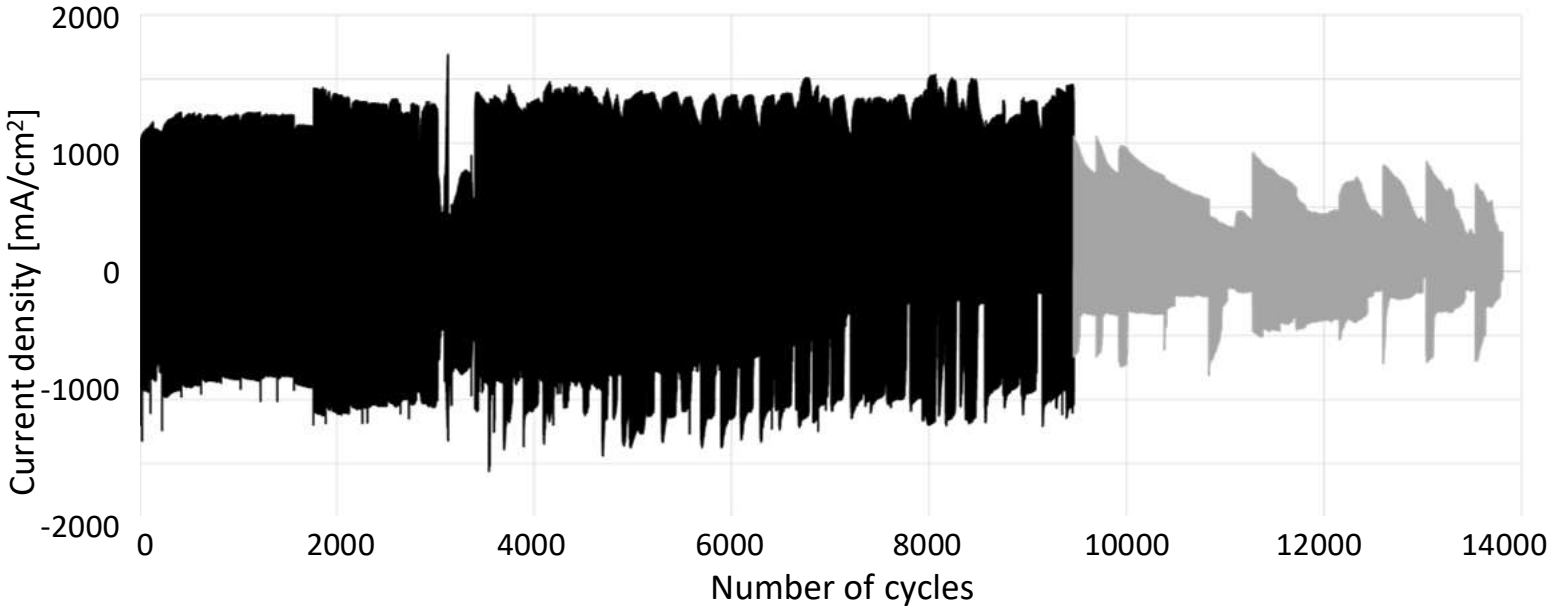
[3] Membrane Materials and Processes, Department of Chemical Engineering and Chemistry, Eindhoven University of Technology, The Netherlands

HBFB development at Elestor

- Durability improvement
- Performance improvement
- New cell design
- System and controls engineering
- Past and the future – functional HBFB in the field

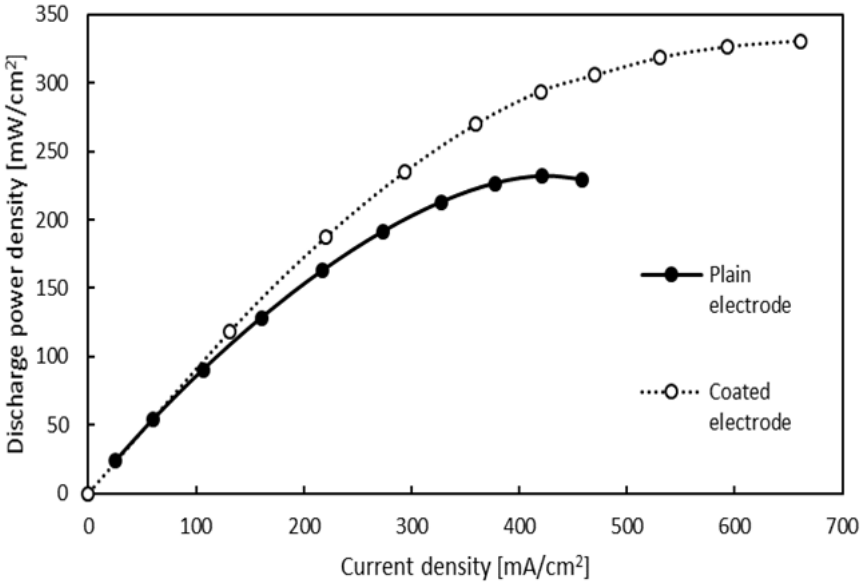
Accelerated life time test

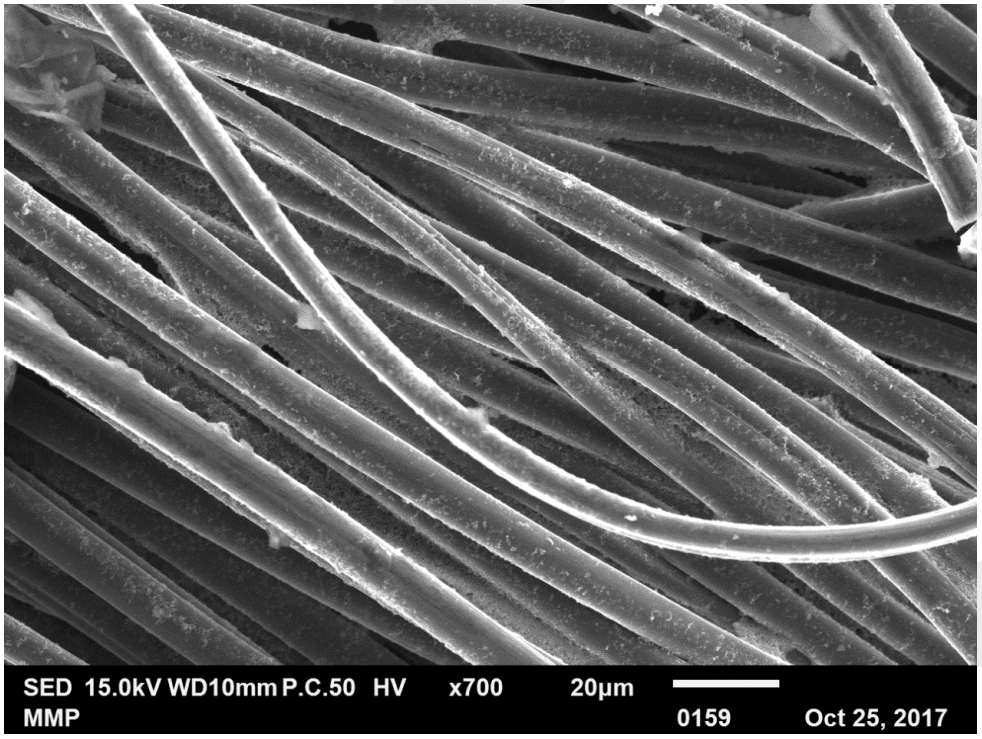
- ~ 1.5 A/cm^2
- Over 13000 cycles
- No permanent degradation
- Periodical performance loss due to electrode flooding



Enhanced bromine electrode

- Up to 40% higher peak power density
- 50% lower kinetic losses

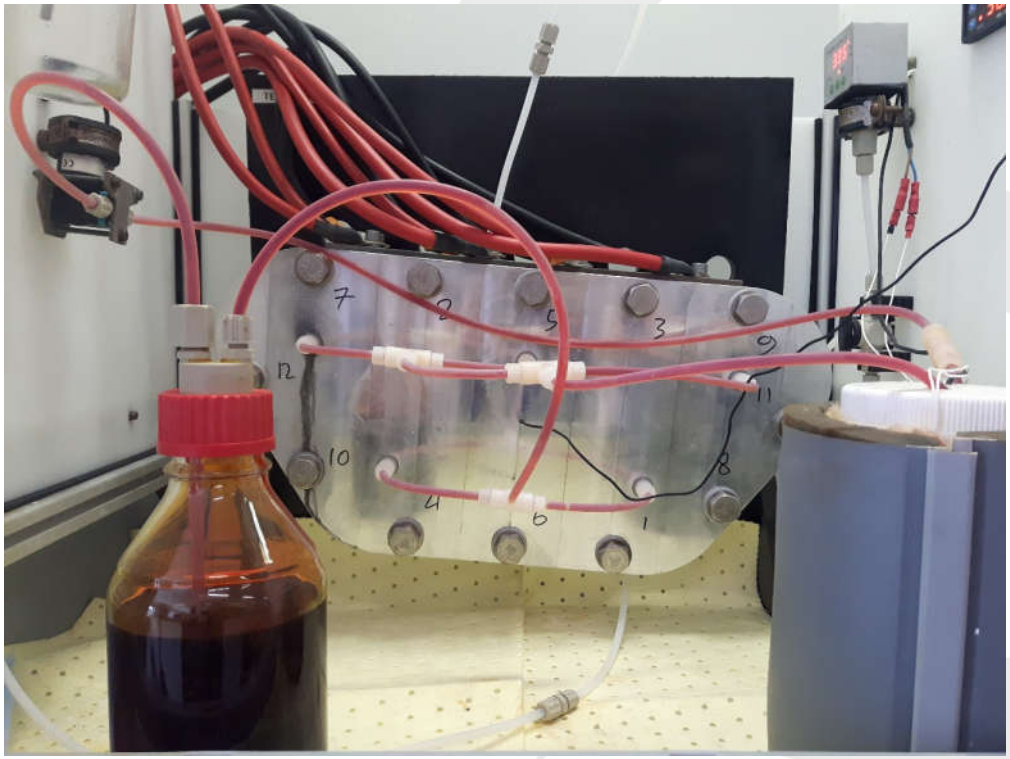




Trapezoidal cell design

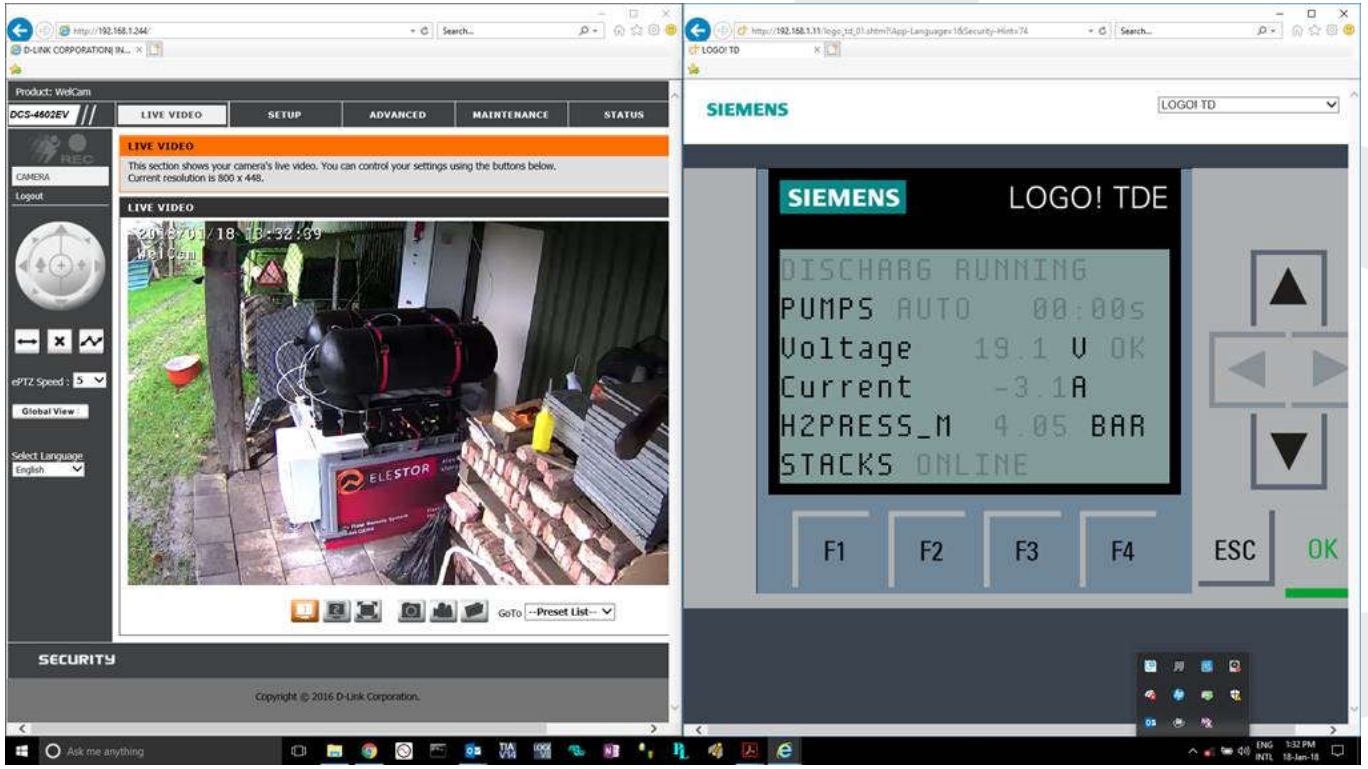
- Accelerated fluid flow
- Constant electrolyte composition
- More efficient H_2 electrode purging

- 12 cell stack - 1.65kW peak power
- 48 cell stack – 5.6kW peak power



System engineering

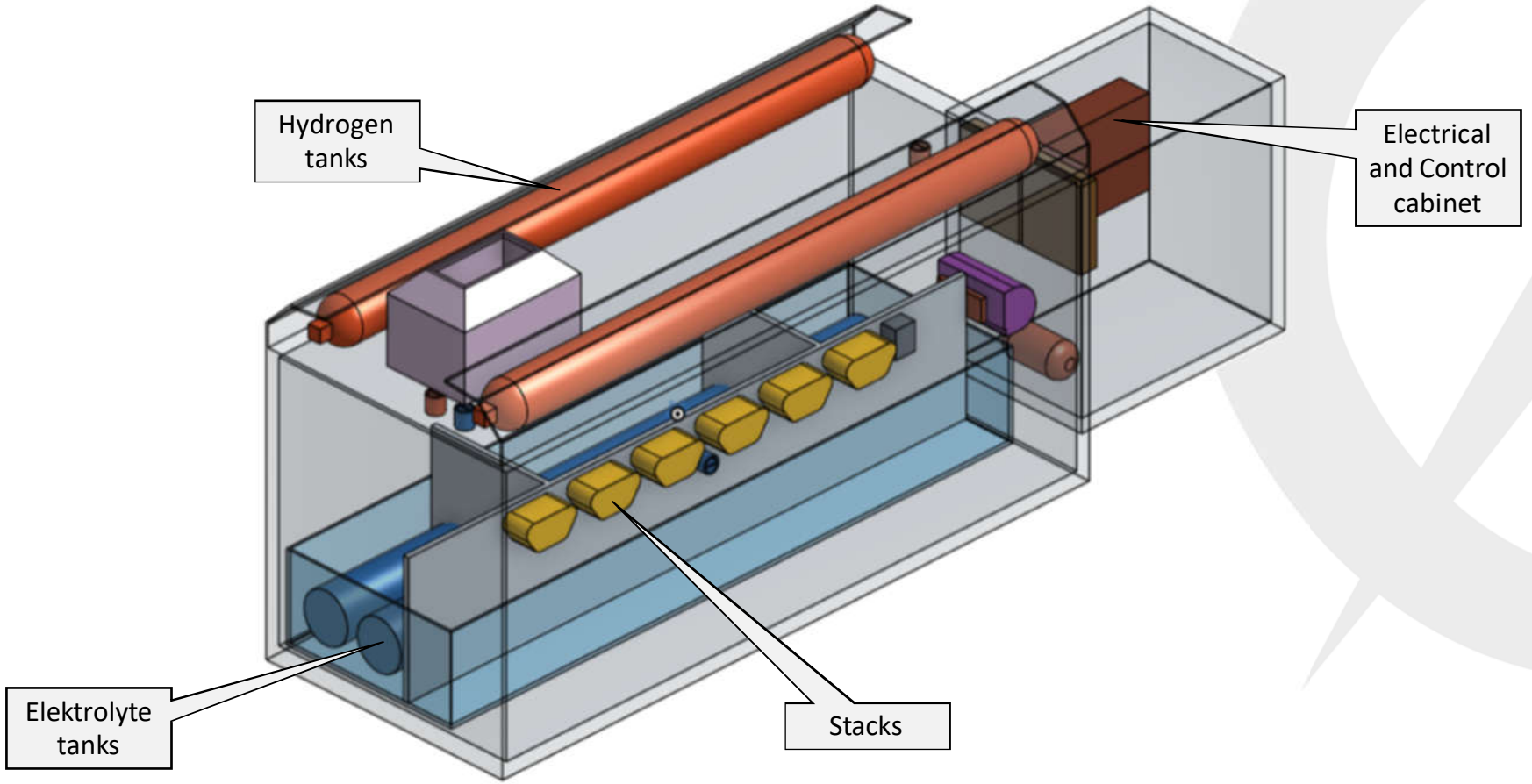
- Remote Monitoring & Control enabled
- Modular design
- Various safety features



The road to 50kW system

					UNDER CONSTRUCTION
2015 First in Europe working HBFB cell	November 2016 Gen 1 field test system	October 2017 Gen 2 field test system	May 2018 2nd Gen 2 field test system	June 2018 1st 48 cell stack	September 2018 Gen 3 field test system

50kW system design



“We will make electricity so cheap that only the rich will burn candles”

- Thomas A. Edison

ELESTOR electricity storage

Westervoortsedijk 73 (Building BF)

6827AV Arnhem, the Netherlands

info@elestor.nl

www.elestor.nl

@ELESTOR_BV