P Stack

PowerCell Group products and services create electric power based on fuel cells using hydrogen. All solutions based on this system will have minimal environmental impact through a zero-emission hydrogen electric system.

The P Stack is a powerful fuel cell stack with an output of up to 125 kW. This stack runs on pure hydrogen and is built using metallic bipolar plates. When scaled to high power, it is one of the leading fuel cell stacks available on the market today.

Developed with partners in the automotive industry, the P Stack is designed for high-volume production and broader system integration within stationary and mobile applications. It is compact and power-dense, meeting the requirements of high-performance system integrations.

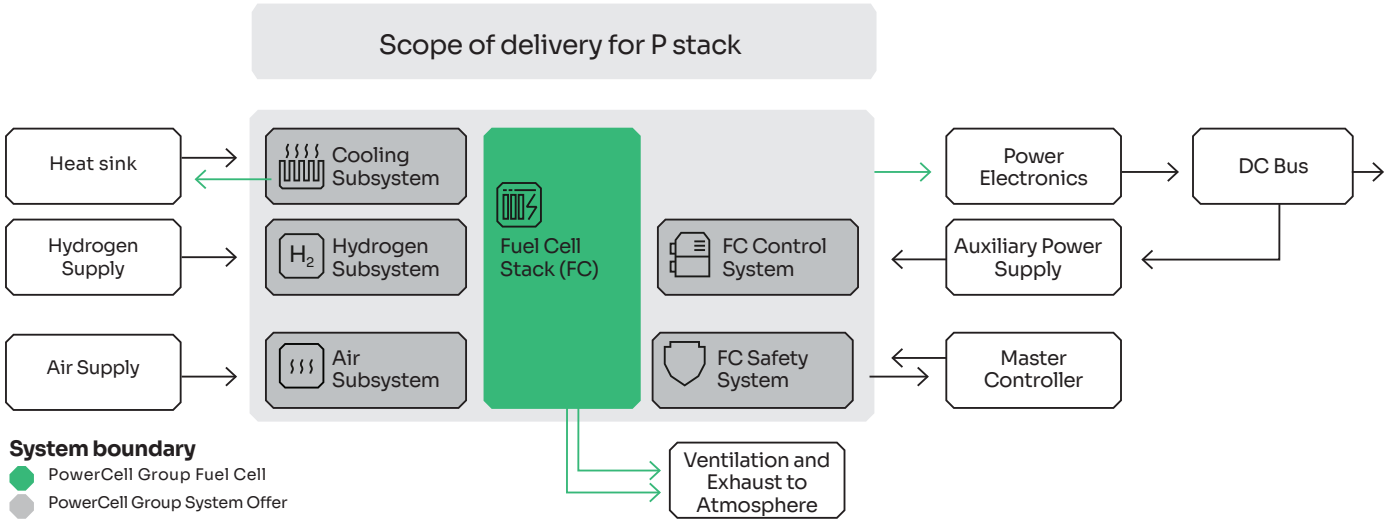
The P Stack has undergone rigorous testing as well as validation with OEMs, renowned research institutes and leading automotive suppliers.

Compact and lightweight

An ultra-thin steel plate design combined with a large active area enables industry leading power density.

Durable

The membrane electrode assembly and steel bipolar plate have been engineered to deliver reliable power generation satisfying both mobile and stationary durability requirements.



Physical data

Configurations/Specification

Standard stack configuration

Max power	75 kW	92 kW	115 kW	125 kW
Cell count	275	335	419	455
Dimensions[i]	420 x 395 x 156 mm	420 x 457 x 156 mm	420 x 545 x 156 mm	420 x 582 x 156 mm
Weight	29 kg	34 kg	40 kg	42 kg

Performance

Coolant outlet temperature	< 90°C
Fuel pressure (outlet)	< 2.2 bar (g)
Air pressure (outlet)	< 2.0 bar (g)
Coolant pressure (outlet)	< 2.4 bar (g)
Ambient temperature	-30–70°C
Humidity	0 to 100% relative humidity; non-condensing at inlet
Fuel composition	70–100% vol H_2 [ii]
Fuel quality	Pure hydrogen [iii]
Operational lifetime	20 000 h

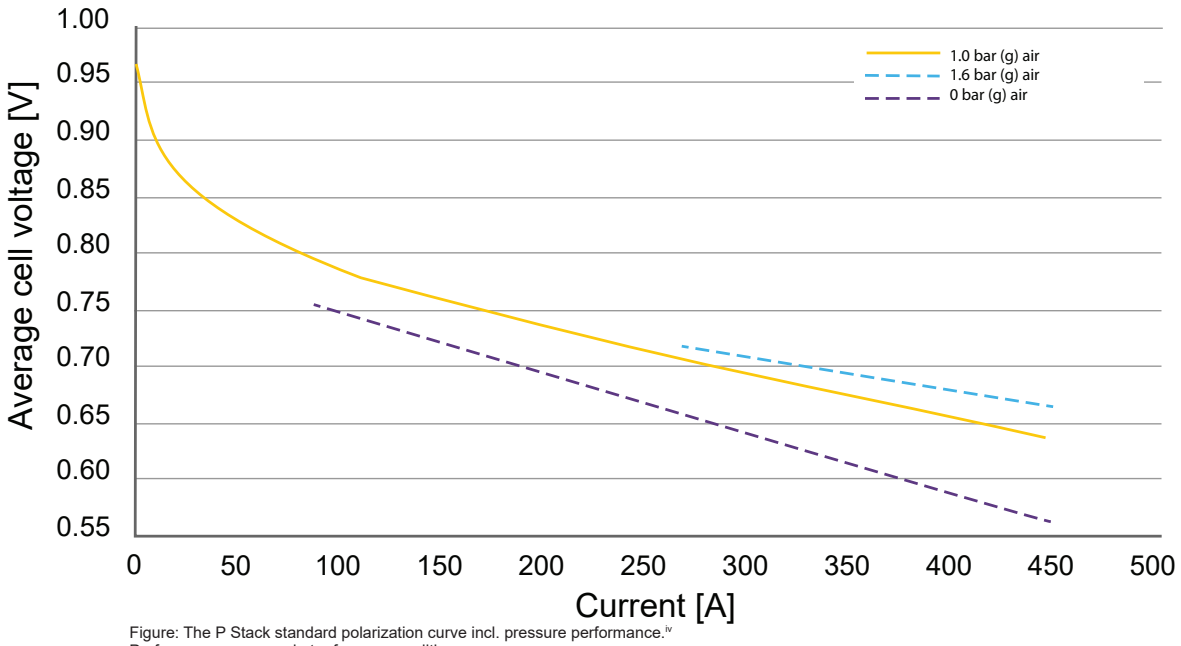


Figure: The P Stack standard polarization curve incl. pressure performance.[iv]
Performance measured at reference conditions

i Dimensions vary within certain tolerances depending on stack size.
ii 0–60% inert dilutants, i.e. He + N_2 + Ar.
iii The fuel quality requirements for PowerCellution P Stack comply with ISO 14687-2 except for inert diluting components. Total concentration (Helium + Nitrogen + Argon) < 30mol% (dry).
iv Anode pressure kept at cathode pressure + 0.2bar(g) during pressure sweep.

Version. 221