

Schunk PEM Fuel Cell Stack



The Universal PEM Fuel Cell Stack



Schunk Bahn- und Industrietechnik GmbH



Your Benefits

Basic Concept: The electrical power requirements of fuel cell systems are realized by modular assembly of identical 360 W stacks.

Flexibility: Power, voltage and current can be set independently by the corresponding number and the electrical connection of single stacks.

Stack Design: Design, materials and manufacturing technologies of the individual components and stacks are suitable for high-volume production.

Sealing Technology: The joining and sealing of the stack components is achieved by a special casting technology.

Space Issues: The flat geometry of the single stacks permits installation even in crowded or compact areas.

Alternative Fuels: All stacks are also available in configurations for reformat gas operation mode.

Cooling System: An external cooling jacket allows the use of typical coolants instead of deionized water.

Cost: In comparison to conventional fuel cell stacks this innovative concept assures cost advantages.



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Properties of FC-42/HLC (Single Stack)

General	
Type	PEM fuel cell stack
Cooling	water/glycol (or other conventional coolant)
Media	air/hydrogen
Design	bipolar

Electrical	
Nominal output	360 W
Nominal voltage	24 V
Nominal current	15 A
Minimum voltage	15 V
Maximum voltage (open circuit)	36 to 42 V
Maximum current	30 A

Thermal	
Operating temperature	5 to 55 °C (non-humidified) <75 °C (humidified)
Ambient temperature	0 to 50 °C
Storage temperature	-10 to 50 °C (dry unit)
Humidity management	self humidified (5 to 55 °C) external humidifier (> 55 °C)

Dimensions	
Number of cells	42
Width x depth x height	approx. 130 x 61 x 190 mm
Weight	approx. 2,000 g

Media	
Hydrogen quality	99,99% (no traces of CO)
Hydrogen consumption	approx. 5 l/min at full load
Maximum anode pressure drop	15 mbar
Air	approx. 25 l/min at full load and $\lambda = 2$
Maximum cathode pressure drop	35 mbar
Coolant (water/glycol)	approx. 3 l/min at full load
Maximum water pressure drop	150 mbar

The data shown above are not guaranteed, but typical values based on our experience from test results. It should be understood that a spread of results can occur due to variations in materials, components, production and test conditions. Schunk reserves the right to change specifications at any time.

Schunk is setting Standards



Single Stack 360 W

Examples of Applications:

- **Technical Safety Systems**
e. g. uninterruptible power supply (UPS), control enclosures, replacement of batteries
- **Small Traction Applications**
e. g. industrial trucks, electric scooters, apron vehicles
- **Off-Mains Power Supply**
e. g. measurement systems, mobile communication systems, renewable energy systems
- **Portable Generators**
e. g. camping, leisure time, military applications
- **Special On Board Supply Systems**
e. g. yachts, motorhomes, special vehicles

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Simple modular assembly up to four fuel cell stacks

Overview of our Product Range

The Standard Stack in Modular Concept for all System Integrators



Power: 27 W
Mass: approx. 0.44 kg
Dimensions: 141 x 50 x 29 mm



Power: 360 W
Mass: approx. 2 kg
Dimensions: 130 x 61 x 190 mm



Power: 720 W
Mass: approx. 4 kg
Dimensions: 130 x 108 x 190 mm



Power: 1,080 W
Mass: approx. 6 kg
Dimensions: 130 x 155 x 190 mm



Power: 1,4 kW
Mass: approx. 8 kg
Dimensions: 130 x 202 x 190 mm



Schunk Competence-Center

Schunk Bahn- und Industrietechnik GmbH is your design and development partner in all questions of power transmission in the industrial and railway sector.

We are your one-stop source for customized solutions such as design and development, production, assembly, sales and applications engineering.

We are close to all important key industries all over the world thanks to our own test facilities, service and maintenance: From the automobil and electrical industry to the medical engineering and renewable energies.

In our Competence-Center we inform you about Schunk fuel cell stacks, their advantages and design as well as their application in practice.

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