



# Schunk PEM Fuel Cell Stack

technological overview

# The modular stack system FC-42/HLC



## Single Stack

Power: 360 W

Mass: approx. 2 kg

Dimens.: 130x61x190 mm



## 2-Stack Bundle

Power: 720 W

Mass: approx. 4 kg

Dimens.: 130x108x190 mm



## 3-Stack Bundle

Power: 1,080 W

Mass: approx. 6 kg

Dimens.: 130x155x190 mm



## 4-Stack Bundle

Power: 1,440 W

Mass: approx. 8 kg

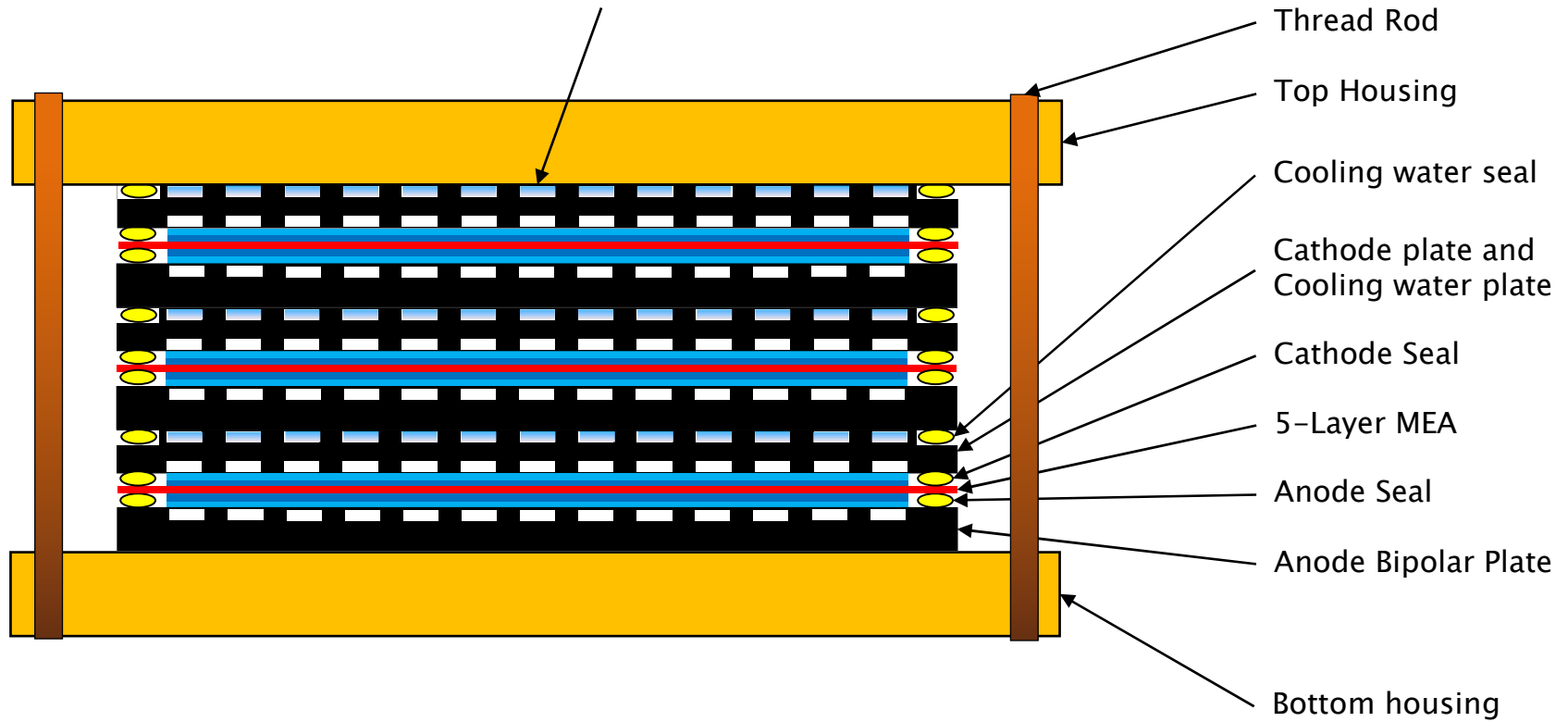
Dimens.: 130x202x190 mm

# Conventional stack design



(3 Cells shown)

Cooling by deionized water



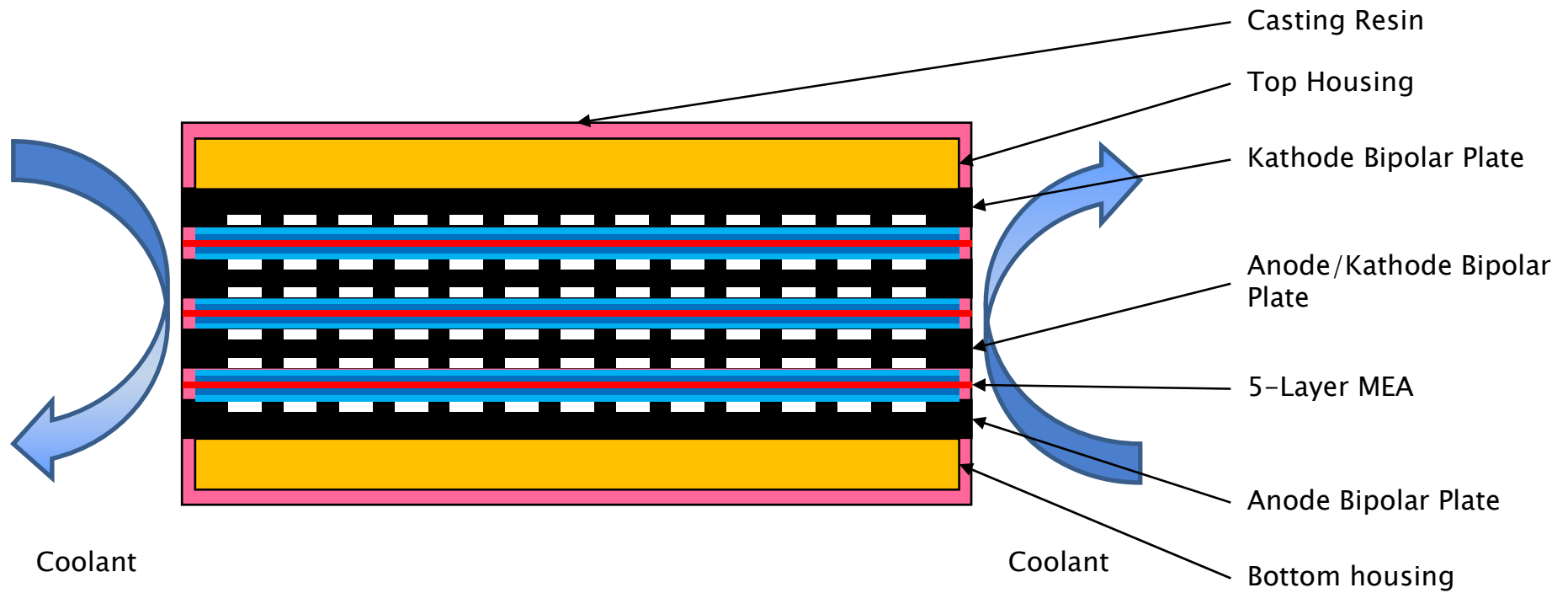
- | Many different components
- | Special solutions with reinforced MEA-edges necessary
- | Many difficulties to apply an automated manufacturing process, e.g. due to a lack of stiffness and mechanical strength of the components
- | Complicated manufacturing technology for bipolar plates with integrated manifolds
- | Reduced production reliability



# Schunk's innovative stack concept



(3 Cells shown)



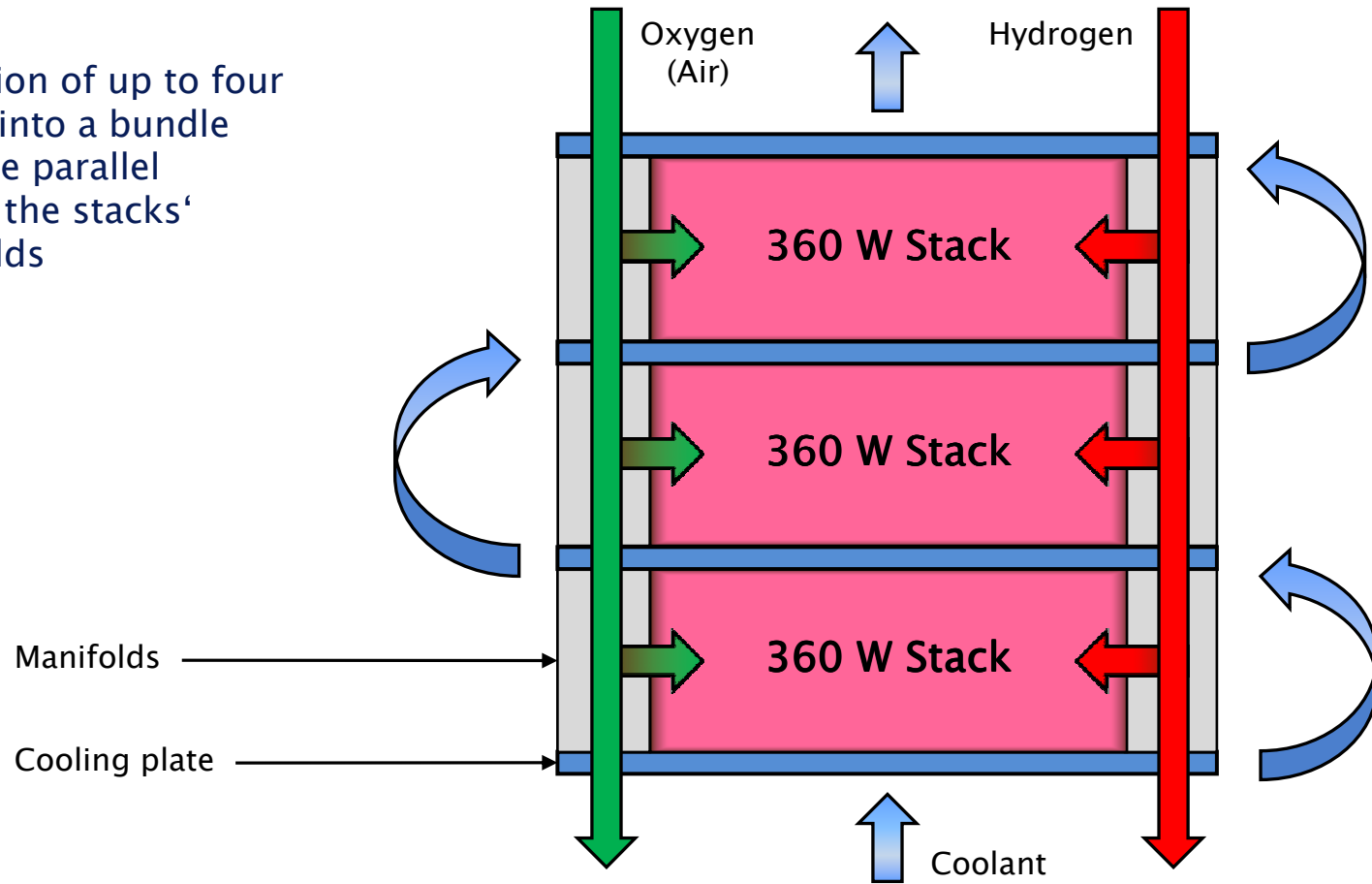
- | Less components, no flexible sealings
- | Optimum manufacturing design of the components  
(MEAs with Edge-2-Edge design, Bipolarplates without bores)
- | Cooling the bipolar plates' edge allows the usage of usual water  
(no deionized water necessary)
- | Very compact dimensions of the complete assembly
- | Easy automation of the assembly process

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Standards

# Interconnection of identical 360 W Stacks



The combination of up to four 360 W Stacks into a bundle is based on the parallel connection of the stacks' media manifolds



## Benefits for the customers



**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.

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

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

**Basic Concept:** In comparison to conventional fuel cell stacks this innovative concept assures cost advantages.





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# PEM Fuel Cell Stack

[www.schunk-fuelcells.com](http://www.schunk-fuelcells.com)