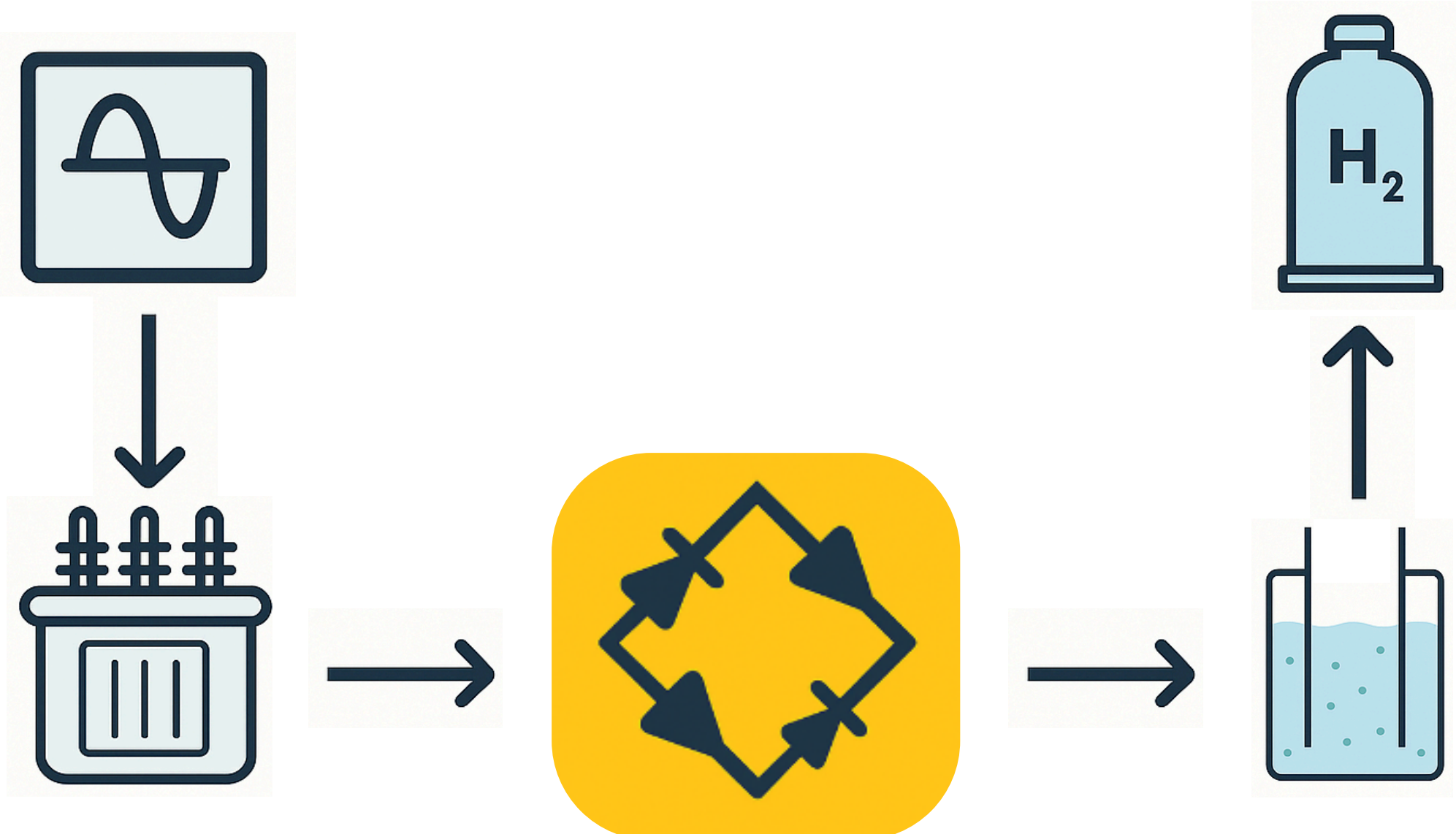


# Reliable and High-Performance Power Rectifier for Hydrogen Electrolyzers

## MARKET TRENDS



In hydrogen production via **electrolysis**, AC grid power is converted into variable DC to drive the electrochemical reaction.

This is typically done using **interleaved buck converters**, which ensure efficient, high-current delivery for splitting water into hydrogen and oxygen.

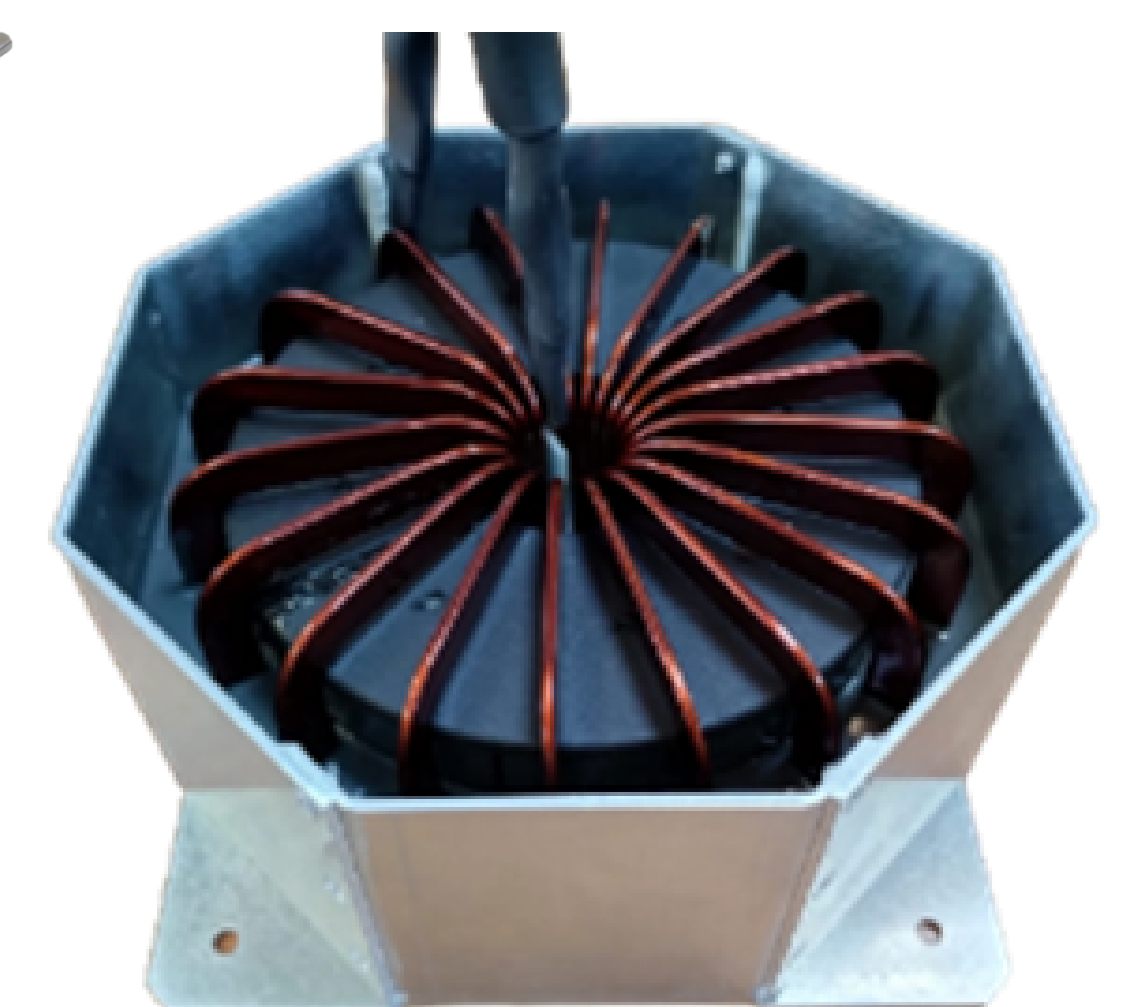
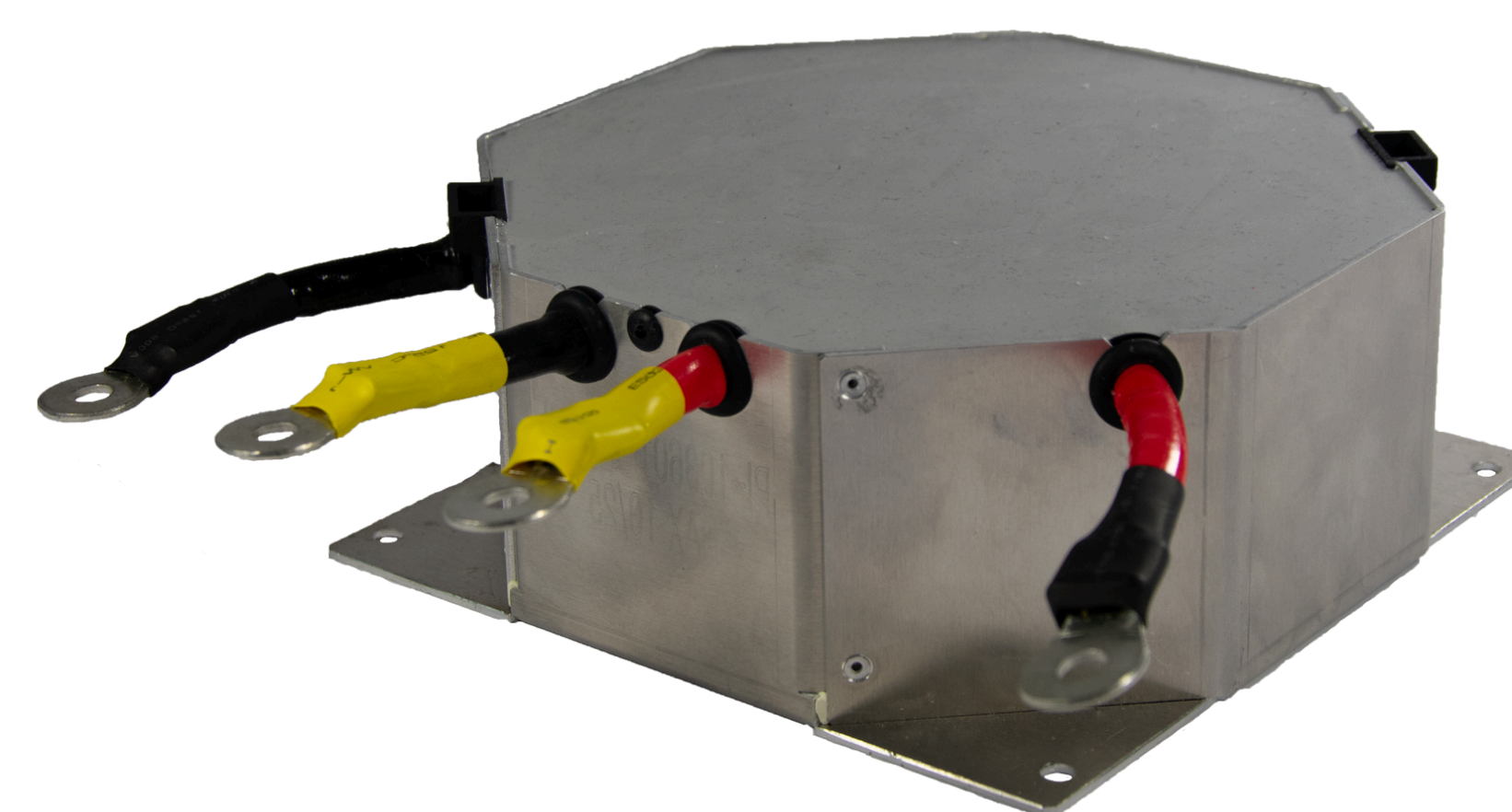
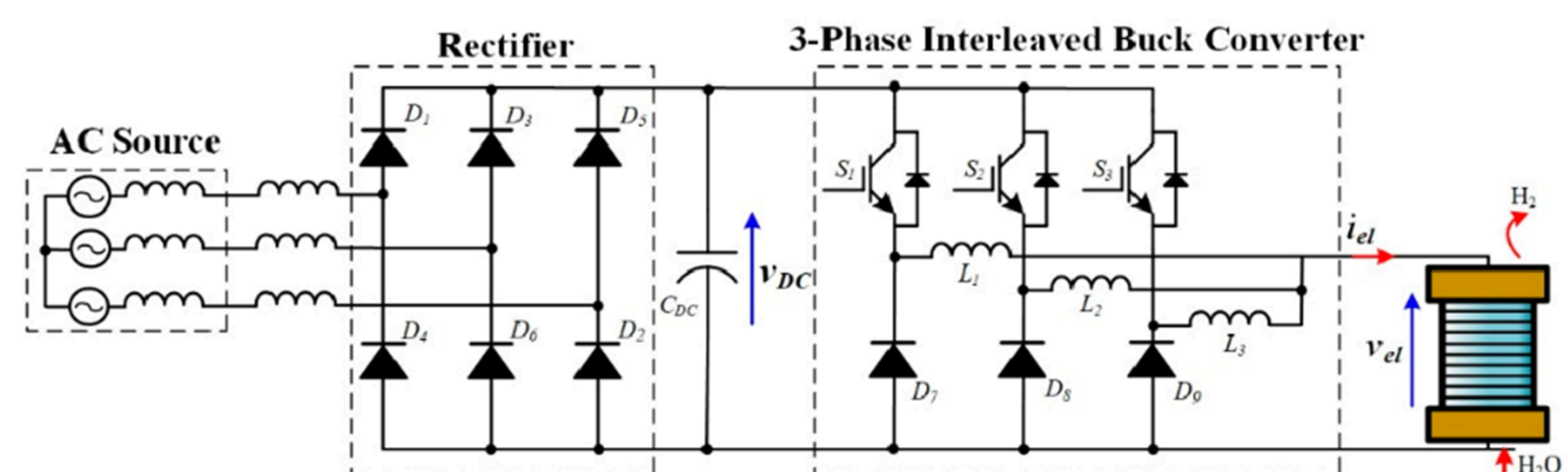
## TYPICAL REQUIREMENTS

- 135kW, 3-phases buck converter for electrolysis system.
- High system efficiency: 96 - 98%.
- High DC current handling without core saturation.
- Magnetic loss control at industrial switching frequencies.
- Stable performance across temperature and frequency variations.
- Compact design:  $\pm 1$  kW/L.
- Water cooling design.
- Mechanical integration into constrained cabinets.

## PRAX approach:

### Custom inductors for Electrolyzers

- Buck inductors operating at 10-15kW.
- High-current tolerance without saturation.
- Multigap ferrite core minimizing fringing losses.
- Enhanced thermal management: Toroidal format with helical flat wire + high-conductive potting.
- Compact design for easy integration.
- Designs validated under industrial thermal and electrical constraints.



Do you like this solution?  
Please contact Heynen for distribution in BENELUX.

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