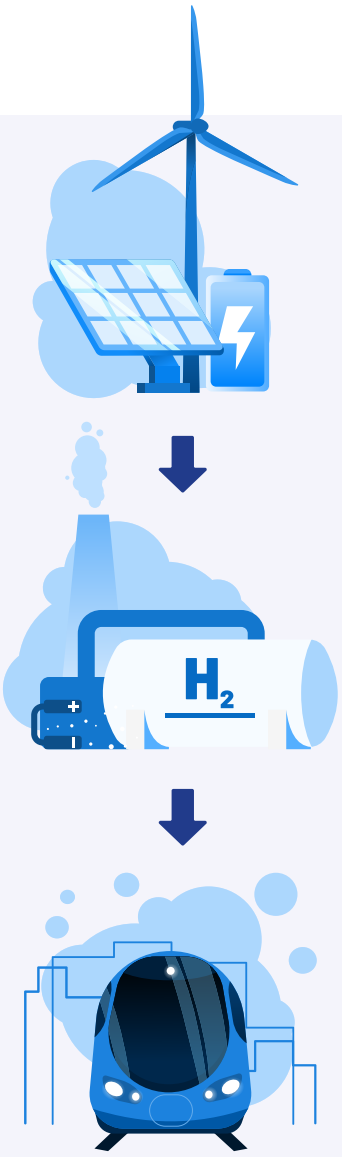
MSc H2 SOLUTIONS

Electricity for electrolyzers

MSc – Expert in power conversion

A greener and cleaner carbon neutral society requires electrification.

MSc is at the core of electrification. Our power converters and solutions for a wide range of applications are built with 40 years and over 17,000 converters of experience to fulfil the needs of our customers in renewable energy production and supply, power quality, railway traffic and industrial applications. Our annual production capacity for rectifier solutions is currently 250 MW. The plan is to double that in the near future.



MSc in H2

MSc's expertise in power conversion enables optimized solutions for hydrogen ecosystems.

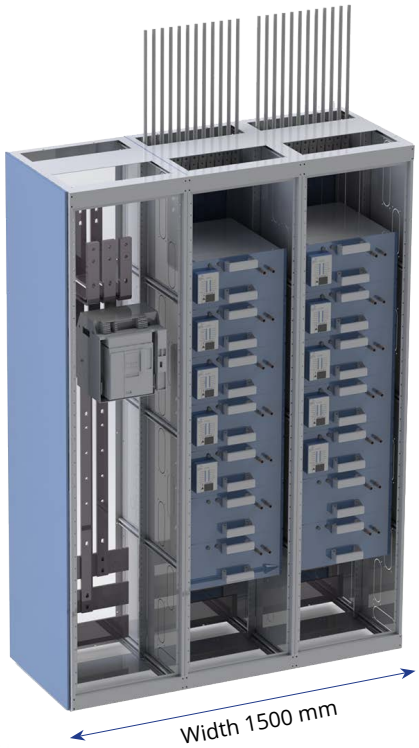
The production of hydrogen in electrolysis process requires large amounts of electrical power ideally from renewable energy sources. Electricity from the grid has to be converted to a suitable form for each electrolyzer application. MSc converters offer an excellent solution for optimizing the process.

MSc modular electricity supply for electrolysis DC power supply

The solution is very maintenance and service friendly and also provides redundancy for the production.

The system can easily be scaled from kW-level to hundreds of MWs. The system can be used with PEM, SOEC and ALKALINE electrolyzers.

The MSc rectifier system can be delivered as a complete containerized solution including the MV/LV transformer or as components for system integrators.



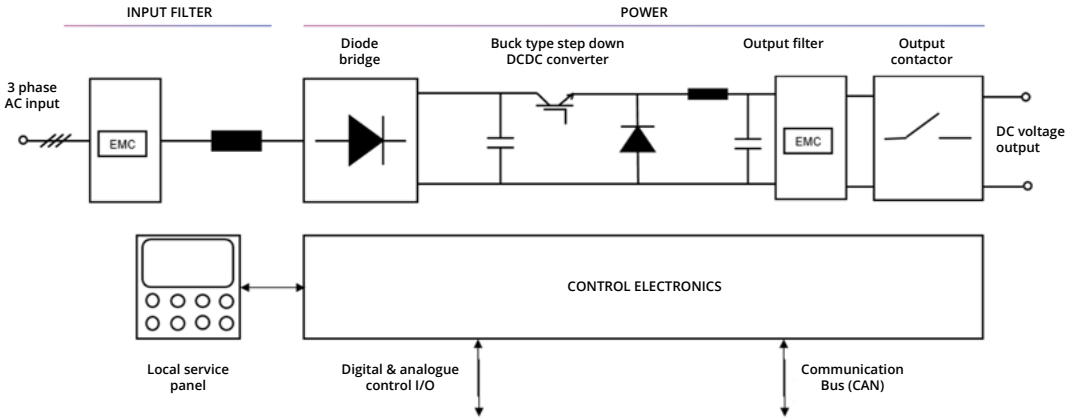
1 MW converter
switchgear module

Advantages

- smallest footprint
- modular and scalable
- high efficiency
- grid compliant (no harmonics)
- SiC transistors and low stack ripple
- suitable for all electrolyzer technologies

100 kW converter: 40 kg, 40 liters

Main functional blocks of the converter / Rectifier buck topology



Technical data / Common features for all types

MAIN POWER

Input voltage:	3 ph 380–600 Vac
Input frequency:	45–66 Hz
Input power factor:	Higher than 0,95
Output voltage:	Controllable 100–600 Vdc (depending on the input voltage)
Output voltage AC ripple:	Less than 1 %
Output power:	500 kW max constant per converter cabinet
Output current:	Max constant 350 Adc

CONTROL I/O

HW inputs:	**HW outputs:**	**Bus: CAN (SAE J1939)**
ON/OFF/Reset	Ready/Running	Parameters
Iset/Uset	Fault/Alarm	Datalogging
	Iout, Uout	Fault and alarm codes

OTHER

Control principle:	Current control or voltage control SIL 2 level enable/inhibit
Max efficiency:	> 98 % at full power
Weight, volume:	100 kW converter: 40 kg, 40 liters
IP class:	IP21
Cooling:	Water/glycol mixture (depending on the lowest temperature) Inlet liquid max 35 deg celsius, outlet liquid +40 °C deg Liquid flow 20–40 l/minute / 0,5 MW (depending on the water/ glycol mixture)
Ambient:	Ambient air temperature –10 deg °C ... + 40 deg °C
Safety standards:	IEC 62477-2022EMC standards EN 61000-6-2 / Immunity for industrial environment EN 61000-6-4 / Emission for industrial environment

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