

Company Profile VONK

Enabling your Energy Transition

Improving Power Supply and Control of your Critical Production Processes

Scientific converters

April 2022



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Energizing Ambitions

VONK: more than 80 years of experience



HOLEC 



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1937

VONK established by Mr. Arjen Vonk



1999

VONK acquires Holec's Power Electronics division

2002

Imtech acquires VONK

2015

VONK continues as part of Industry International Group

2020

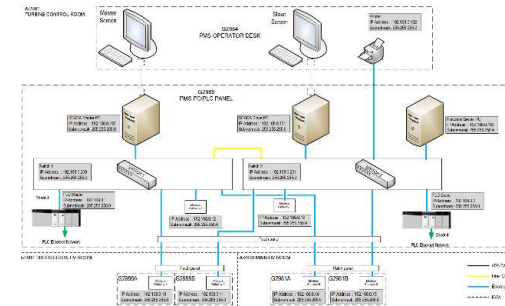
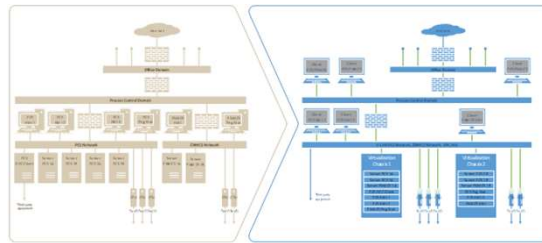
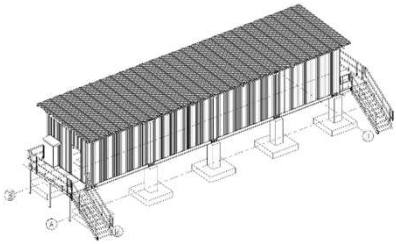
VONK & Ampulz merge into VONK to strengthen position in energy transition

Ampulz vonk®



Technical Capabilities: Power Distribution and C&A

VONK offers power supply and control & automation solutions for complex and remote circumstances



Containerized solutions

- Containerized power distribution and power delivery systems, often with integrated process control systems:
 - ❖ Substations
 - ❖ Hybrid Power Systems
 - ❖ Integrate multiple OEM equipment

Control & Automation Systems

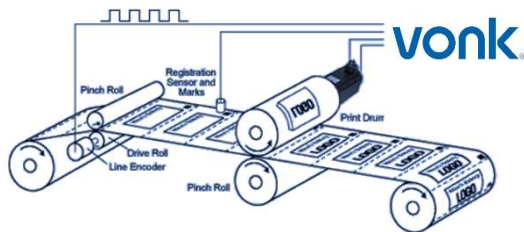
- Rejuvenation of process control systems for Oil & Gas plants:
 - ❖ Networks, virtualization and compliance to latest Cyber Security standards
 - ❖ Control Room upgrade, incl. human factors engineering
 - ❖ Alarm Management
- Process Safety Systems and F&G systems

Power Management Systems

- Assuring power availability for critical consumers whilst minimizing operational costs
 - ❖ Load Shedding
 - ❖ Automatic start/stop of generator sets

Technical Capabilities: Specialized power conversion solutions

VONK offers unique power conversion solutions for high reliability & accuracy requirements



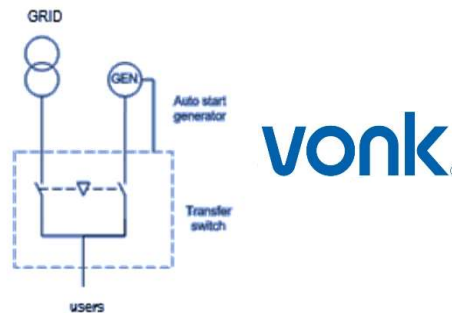
Drive solutions

Customized drive solutions engineered to meet complex applications

- ❖ Medium frequency drives
- ❖ High voltage / Low voltage drives
- ❖ Direct current (DC) drives

Key differentiator

Very fast reaction time and outstanding stability of controlling power components, using our proprietary Control Platform



Industrial grid connections

Active and stable connections for high quality grid connections between different energy sources, users and grids.

- ❖ Power quality improvement
- ❖ Proprietary Active Front End technology
- ❖ High voltage / Low voltage components & distribution

Proprietary developed configurable technology, hard- and software engineering capabilities to deliver high quality stable grid connections



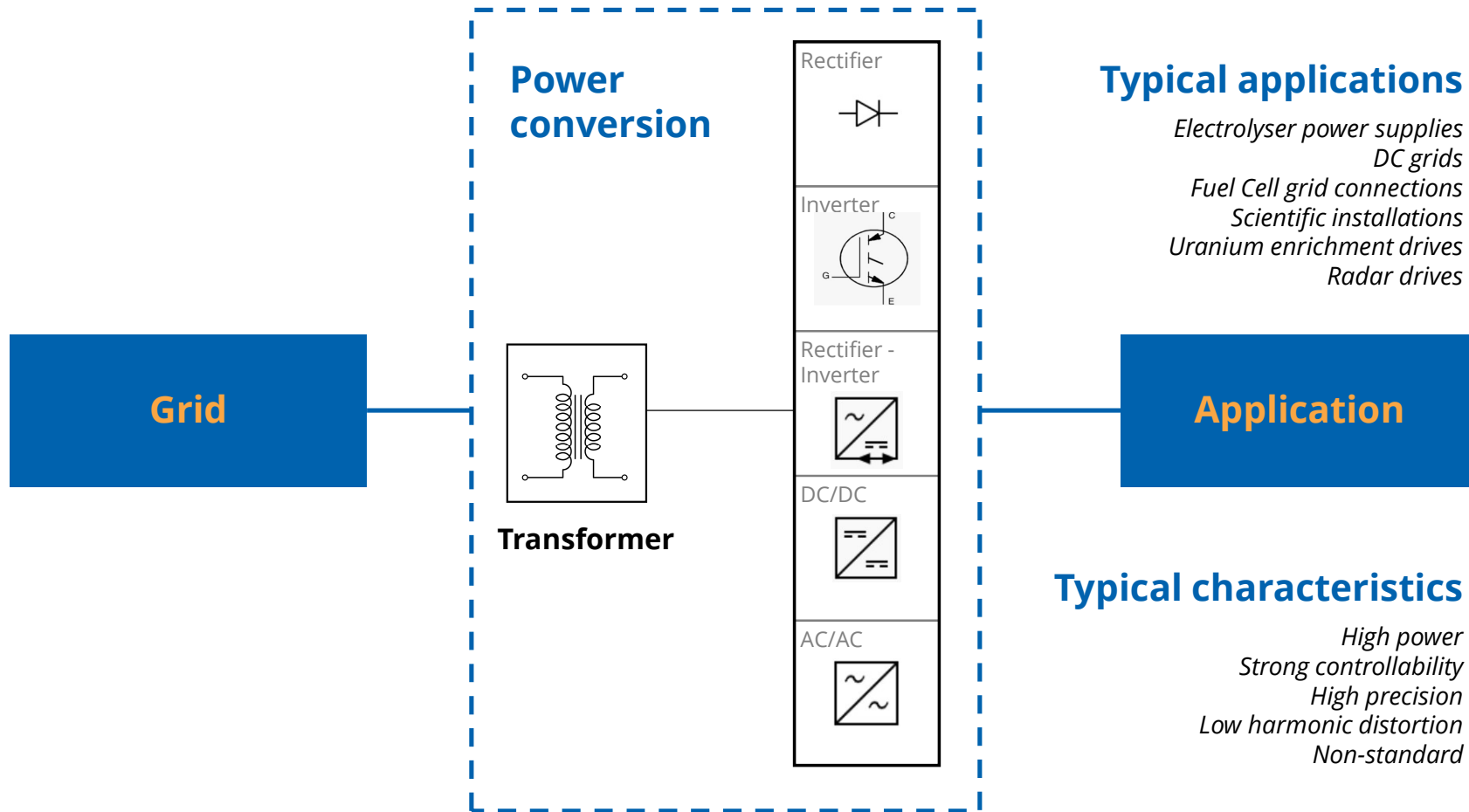
Special power converters

Solutions enabling complex magnetic and power system management for specialized scientific and industrial applications.

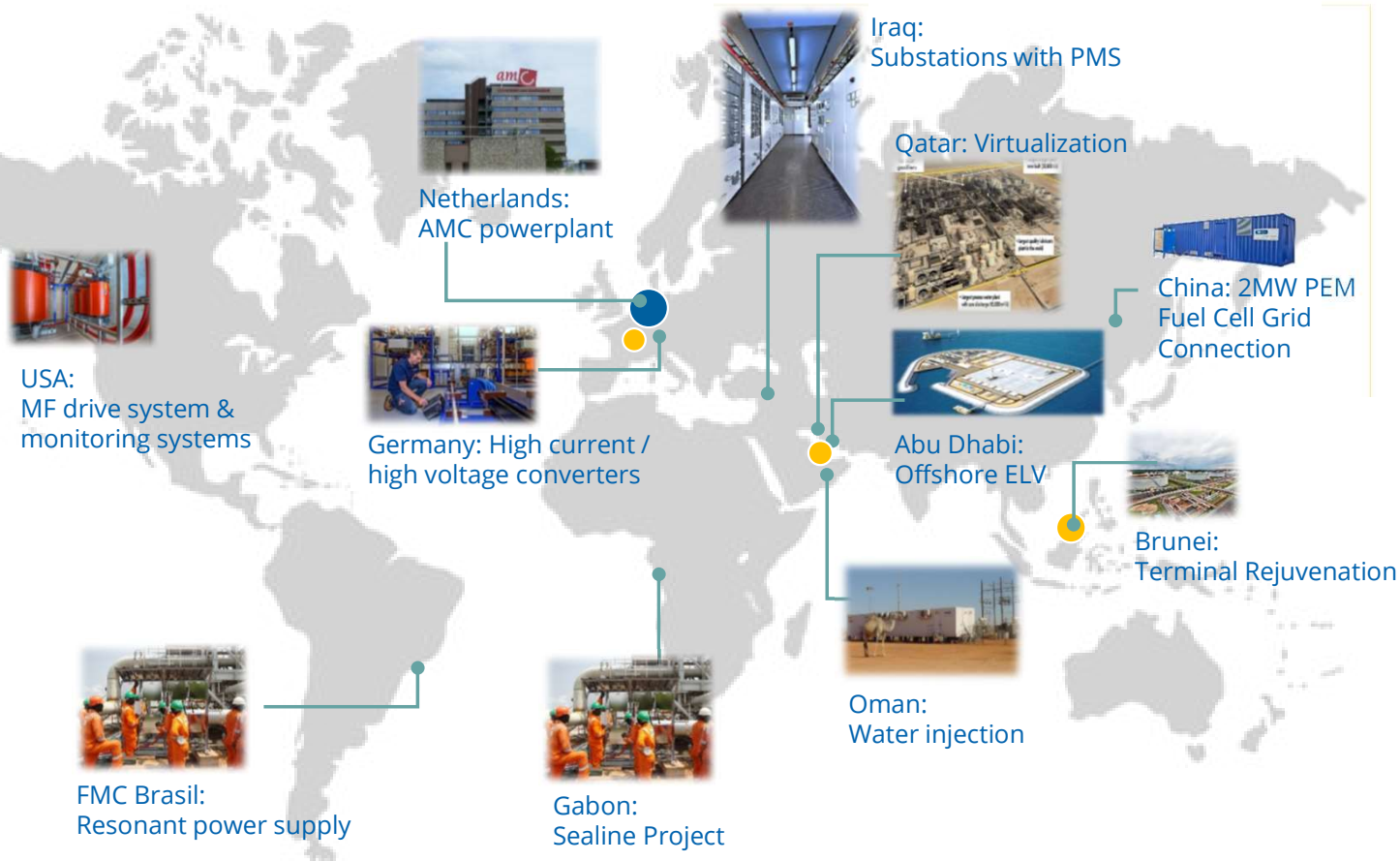
- ❖ Pulse modulators
- ❖ Rectifier systems
- ❖ DC/DC converters

Qualified to deliver power converters for nuclear fusion, particle acceleration and high magnetic fields

Specialized Power Conversion solutions



We act globally



Our locations

- ▶ Main office
 - ❖ Zwolle, The Netherlands
- ▶ Workshop
 - ❖ Meppel, The Netherlands
- ▶ Branch offices
 - ❖ Pierrelatte, France
 - ❖ Dubai, United Arab Emirates
 - ❖ Seria, Brunei

VONK Control Platform

- ▶ State-of-the-art electronics platform
 - ❖ In-house development to support projects
 - ❖ Any level of power, bi-directional
 - ❖ Fast- and slow loops, great accuracy (ppm at system) and speed (ms for controls)
 - ❖ Can be connected to external communication
- ▶ Custom solutions based on standard building blocks
 - ❖ Strong reduction in engineering time and costs, less risks



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Energizing Ambitions

Reference: HFML 20MW Magnet Lab converter

HFML in Nijmegen

- ❖ High Field Magnet Laboratory
- ❖ Strongest continuous magnet field in the world
- ❖ 20MW Power Supply designed, manufactured, tested and installed by VONK



Relative low Voltage with high Current

- ❖ Output Voltage: 0---500 V
- ❖ Output Current: 0---40kA

Extreme precision

- ❖ Maximum current ripple: 10 ppm
- ❖ Short time DC stability: 2ppm of I_n

Strong controllability

- ❖ Current control range: 0 to I_n
- ❖ Fail-safe operation mode

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Energizing Ambitions

References: Max Planck large scale project

Max Planck Institute for Plasma Physics

- ❖ Fusion research centre in Munich (DE)
- ❖ Largest fusion reactor in the world



Power Supply 140 MW

- ❖ Maximum Voltage: 1300V
- ❖ Maximum Current: 45kA

Flexible setup

- ❖ Consists of 4 identical converters
- ❖ Multiple operation modes

Total solution

- ❖ Scope includes transformer, rectifier, switchgear, cooling, busducts

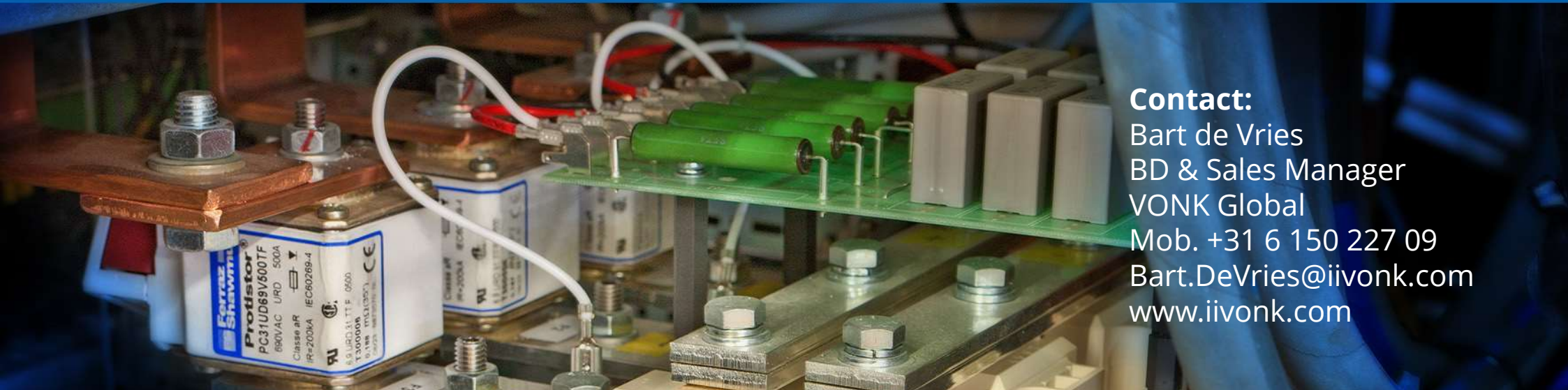
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Questions?

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