

Power Electronics for the Industry



zopf-energie.de

The ZOPF group

Renewable energies since 1992



Planning & Development



Over 150 successful
turn-key projects

Wind Farm Operations



Technical & commercial
operations

Service & Maintenance



Maintenance and repair
for 100+ turbines

Power Electronics



Manufacturing of power
electronic components

Power Electronics

OUR MAIN PRODUCT GROUPS



POWER STACKS



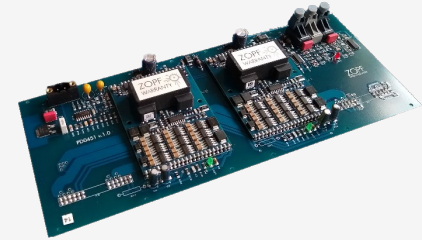
- Development
- Manufacturing & Repair
- Obsolescence Management
- Air & liquid cooled

MULTILAYER BUSBARS



- Development
- Manufacturing
- Laminated Multilayer
- Copper & Aluminum

PRINTED CIRCUIT BOARDS



- Development
- Manufacturing & Repair
- Multilayer
- SMD & THT

Application Sectors

IN VARIOUS INDUSTRIES



WIND



SOLAR



INDUSTRY

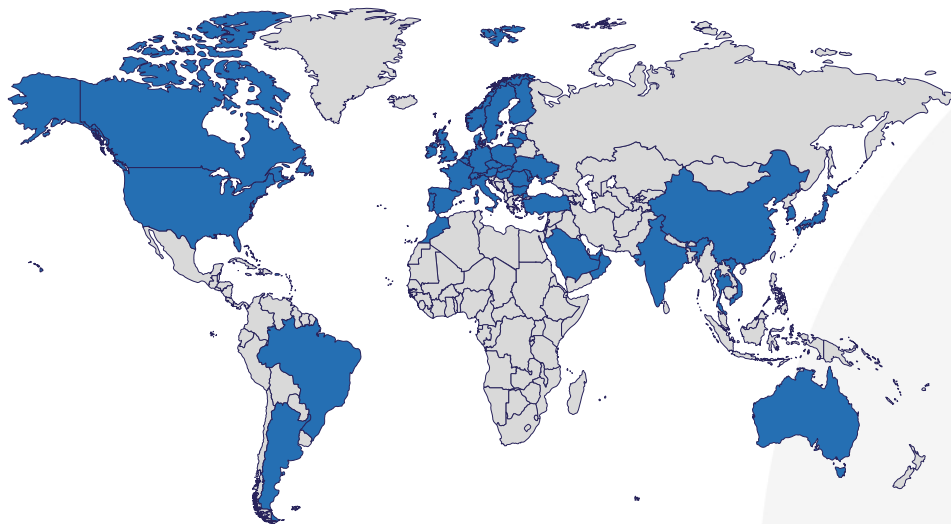


E-MOBILITY



Global Footprint

COUNTRIES & CUSTOMERS



RWE

Vestas

ŠKODA

edf
renewables

SIEMENS Gamesa
RENEWABLE ENERGY

ERG
ENERGIA E VERITÀ

**Deutsche
Windtechnik
Service**

benTEC

Converter | Tec

NORDEX

thyssenkrupp

SMA

leipa

SALZGITTERAG
Stahl und Technologie

VOITH

DB

saarstahl

elringklinger

Key Company Figures

DATA & LOCATIONS



- Founded in: 1992
 - # of Employees: 65
 - Head office: Leipzig, Germany
-
- | | | |
|-------------|-------------|-----------------------|
| • Revenues: | 2024 | 17,2 Mio. Euro |
| | 2023 | 16,8 Mio. Euro |
| | 2022 | 14,3 Mio. Euro |
| | 2021 | 9,6 Mio. Euro |
| | 2020 | 7,0 Mio. Euro |
| | 2019 | 4,4 Mio. Euro |

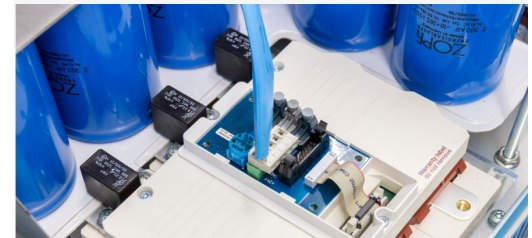
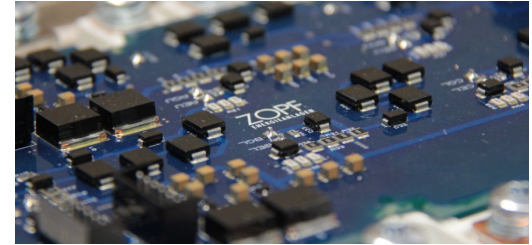


Evolution

MILESTONES



- 2024 ● Expansion of Manufacturing Footprint
Set up of new 3.800 m² manufacturing site in Wickede, Germany
- 2022 ● Venture Capital
Majority share in the power electronics start-up „krecotec“
- 2021 ● Investment in Laminated Busbars
Acquisition of busbar supplier EMEK in Vöhrenbach, Germany
- 2019 ● Investment in Printed Circuit Boards
Set up of new PCB assembly line (SMD)
- 2017 ● License Agreement with Infineon
ZOPF partners with Infineon to continue the power stack mfg & repair
- ISO 9001:2015 Certification
The QM system of ZOPF is certified by TÜV Süd
- 2016 ● New Power Stack Manufacturing
Manufacturing start of new power stacks for the renewables industry
- 2007 ● General Overhaul and Repair
Start to overhaul and repair converter power stacks
- 1996 ● Service and maintenance of wind turbines

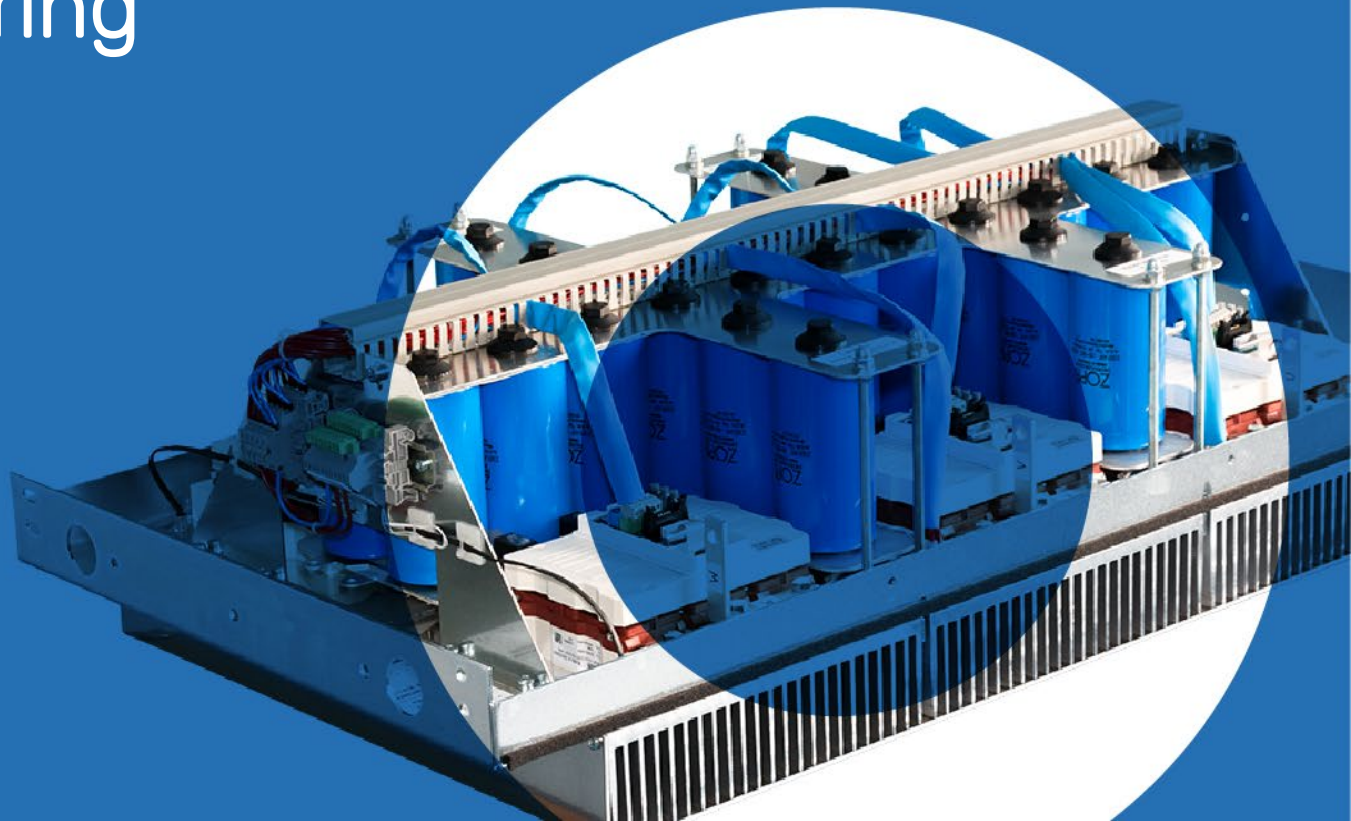


Power Stack Manufacturing

Leipzig
Germany



ZOPF



Power Stack Portfolio

LEIPZIG



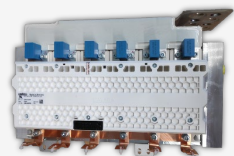
SEG / Woodward / ConverterTec



ZOPF STACK Master + Slave



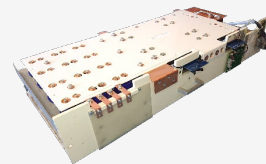
ZOPF RACK 314 air & water



ZOPF NGX SkiIP



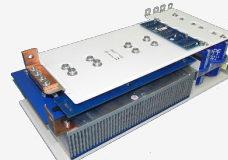
ZOPF NGX LightStack



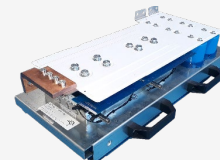
ZOPF MD2000



GE Delta Module 800A & 1000A



ZOPF Pro 1.5 MW - air



ZOPF Pro 2.5 MW - water



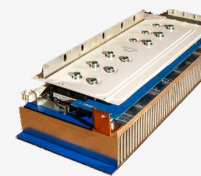
ZOPF NG03 air & water



ZOPF DC Limiter / Chopper



ZOPF Pro 2.0 MW - 580A + 750A



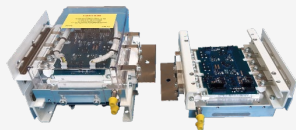
ZOPF Pro 2.0 MW - 580A + 750A

Power Stack Portfolio

LEIPZIG

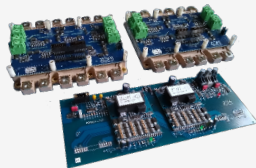


GE Salem



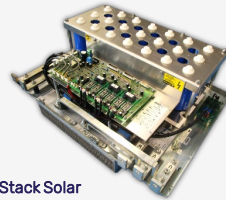
ZOPF Rotor & Line Side 1.5

Ingeteam



ZOPF AK Set – AK9779 + AK9758

SMA



ZOPF Stack Solar

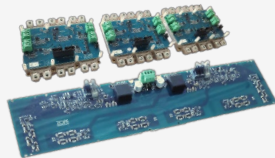
others



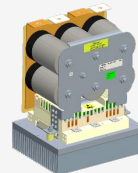
L&B Pitch Control



ZOPF Rotor & Line Side 2.5



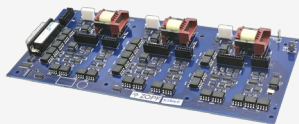
ZOPF AK Set – AK9762 + AS3566



ZOPF PrimeStack



ZOPF Fit Board



ZOPF AEBI driver board



CSC 3 HU & SU

Head Office & Manufacturing

LEIPZIG



- 40.000 m² area
- 800 m² production
- 900 m² warehouse



Engineering & Test Bench

LEIPZIG



Engineering Department

- Electrical & mechanical design team
- Stack design and PCB design
- Advanced test equipment (double pulse, power loss measurement)



ZOPF Energieanlagen GmbH



Test Bench

- 100% final testing
- Computer controlled & Automated test records
- AC 690V / 400A
- DC link forming
- Active cooling

Power Stack & PCB Assembly

LEIPZIG

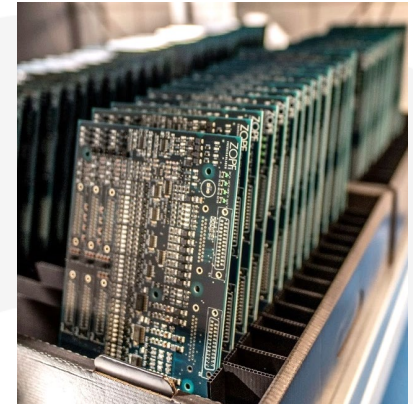


Power Stack assembly

- 6 workstations, expandable up to 12
- Work step protocols
- Dual follow-up check



ZOPF Energieanlagen GmbH



Printed circuit board assembly

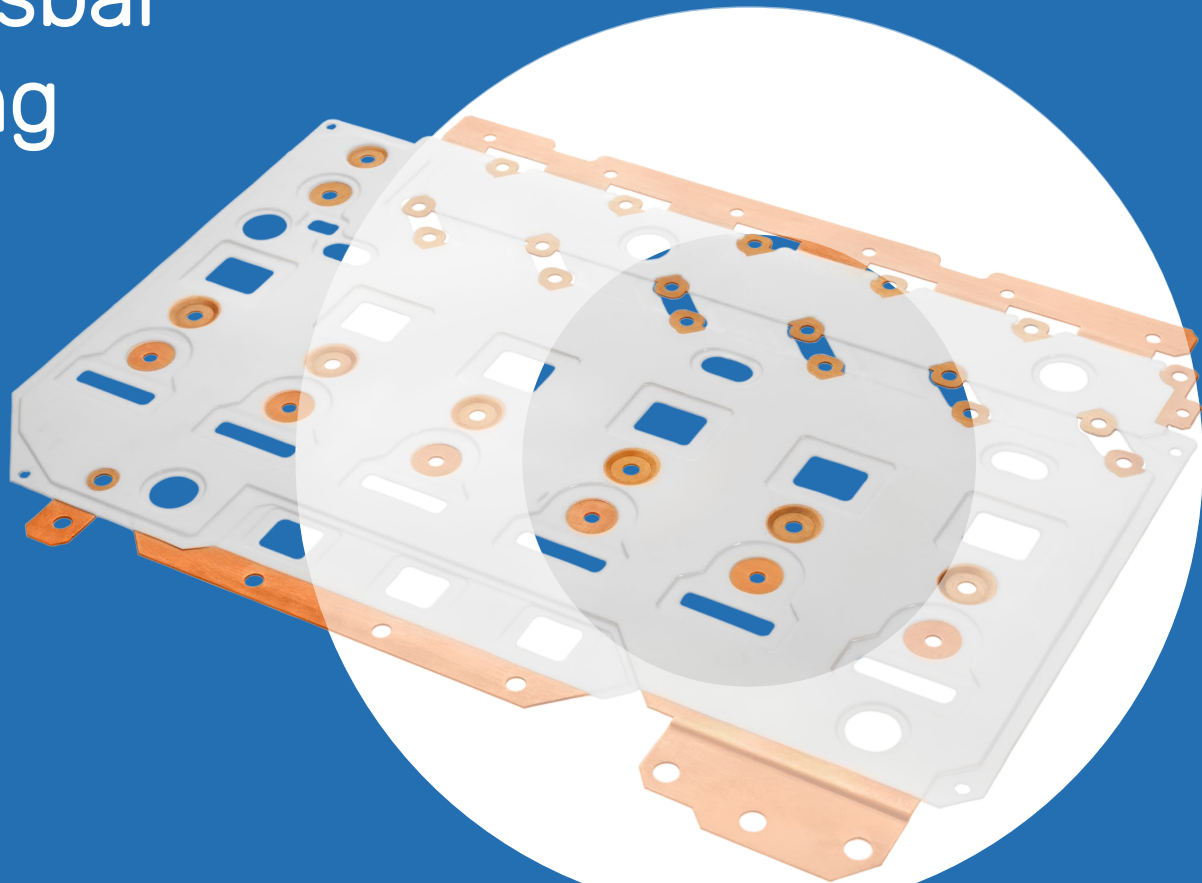
- SMD pick & place assembly
- Reflow brazing furnace
- Vapor phase soldering
- Soldering workstations for THT components

Multilayer Busbar Manufacturing

Wickede
Germany



ZOPF



Busbar Portfolio

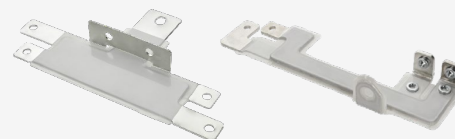
WICKEDE



Multilayer with pre-mounted components



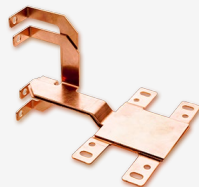
Customer specified connectors



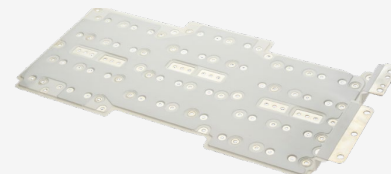
Space saving connections



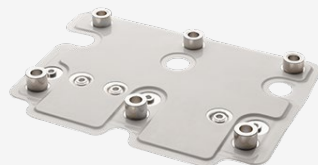
Flat construction



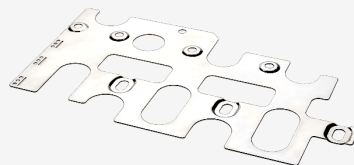
Without insulation



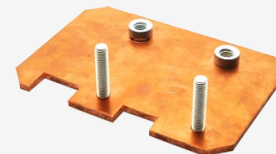
Multilayer on various levels



Multilevel press-fit parts



Punching parts



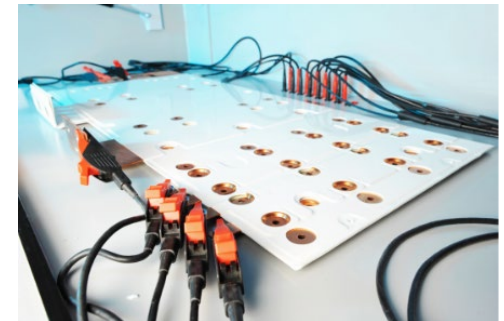
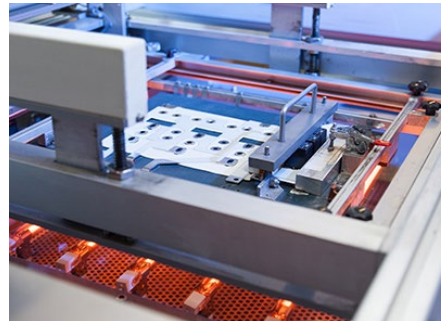
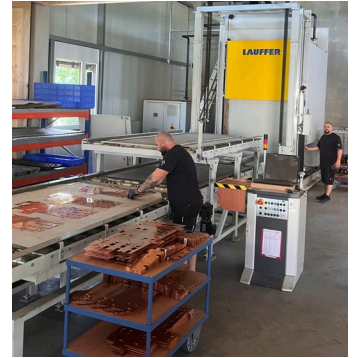
Up to 6mm copper punching

Busbar Manufacturing

WICKEDE



- 3500 m² production area
- Production start Q1 2025
- Laminated busbars & heat sinks
- Punching, CNC milling, bending, 3D scans, vacuum heating press



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Thank you

[Click here to watch our video](#)

