

E-Facts

Mobile machines, supplied by public grid & typical applications

We drive new energy for a greener future



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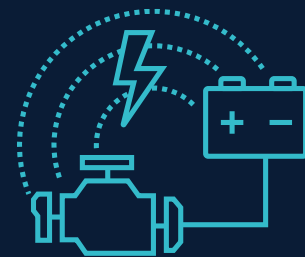
Contact us and challenge us with your applications

INTRODUCTION

ARADDEX and our role for electrified
and hybridized drivetrains

/ We are ARADEX

Smart electrical and hybrid solutions for commercial vehicles, mobile working machines, and ships. We offer HV-DCDC, inverters, e-motors and accessories



Multi energy supply

Modular subsystems which can be adapted to future demands. Battery, hybrids, hydrogen, cable.



Matching e-motors

According to your application and requirements: direct drives, gearbox drives. PMSM or magnet-free motors.



Mastering HV systems

Mastering interactions in high voltage systems. With our devices, matching accessories, and system knowledge.

/ ARADEx AG, Germany

Application center(ed)



ARADEx is part of WEICHAI Power. At our headquarters in Lorch near Stuttgart, Germany, we focus completely on mobile high voltage products and their usage in your application:

- Development & Application
- Visitors & Training Center
- Test benches
- Service-Center, Production Warehouse

/ Application fields

Our main target markets are commercial vehicles, mobile working machines and marine applications. And in addition: stationary applications.

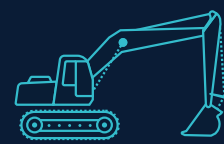
(On-highway)

COMMERCIAL VEHICLES



(Off-highway)

WORKING MACHINES



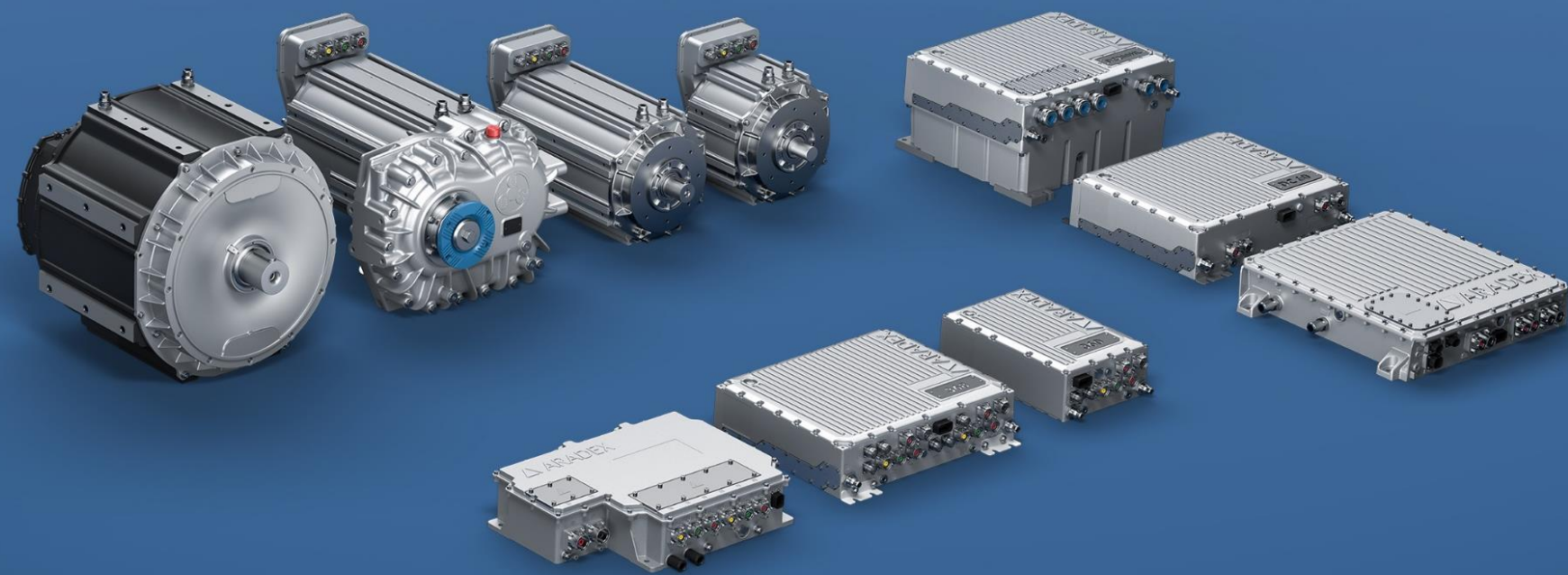
(Marine)

SHIPS



/ What we offer

Our portfolio



HV DC/DCs, inverters, motors, motors with gearboxes

We cover voltage from 300 to 840 VDC and power range from 30 to 1200 kW (with cascaded solutions). Our subsystems for power supply by public grids or to create local grids can perfectly be combined with other ARADEx HV devices such as inverters and drives to realize systems. In the design we paid particular attention to EMC-compatibility and low harmonic distortion of the AC grid.



CONNECTING TO PUBLIC GRIDS

Complete solutions to connect
mobile machines to public grids

/ Grid supply & local grids

An overview



THE COMPLETE SUBSYSTEM

We offer complete subsystems to supply a working machine from public grid or to create local grids from (battery) DC voltage.



PERFECTLY ADAPTED

The filters and transformers are in one water-cooled box and prepared to be connected to VECTOPOWER inverter.



SCALABLE POWER

In applications already implemented we covered grid connections up to 600 kVA and local grids up to 300 kVA.

/ Local & public grids

Inverter + filter + transformer

To connect to public grids
& for creating local grids:
Transformer + filters - water cooled
housing.

- Similar housing for grid connection and for local grid
- Shown in diagram: 44 kVA solution
- Integrated components are dependent on voltage and function.
- The Inverter is connected externally



Dimensions 86kVA:

1200 mm * 800 mm * 460 mm

Dimensions 44kVA:

1000 mm * 800 mm * 460 mm

Dimensions 22kVA:

800 mm * 800 mm * 360 mm

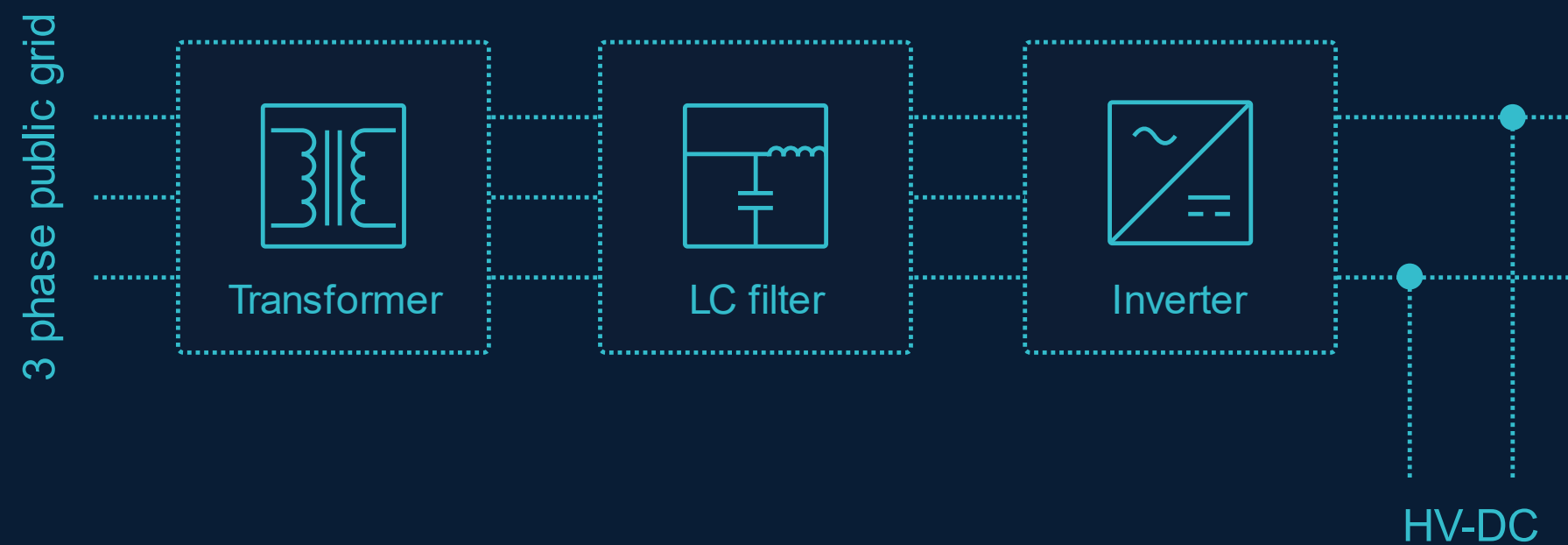
Filter & transformer:

Steel housing IP55



/ To connect to public grids

Cable supplied mobile machines



We couple a HV system to a public grid by a transformer and a filter as a package + inverter. Both water-cooled and for mobile usage.

- For cable supplied machines or high-power charging.
- Available power versions 11, 22, 44, 86 kVA. Higher power available with parallel operation.
- Versions to adapt to HV systems 350 - 840VDC.
- Complete subsystem, including inverter-software.

/ To connect to public grids

Available versions

Continuous power	DC-voltage	Width * Depth * Height [mm*mm*mm]	Weight [kg]	Item number	Matching VP inverter VP600 series3 and M-series3
11 kVA	≥ 350 VDC	800x600x360	104	VPGC_1.AFE.1100350	VP600-18W361 / 28W345
11 kVA	≥ 480 VDC	800x600x360	97	VPGC_1.AFE.1100480	VP600-18W361 / 28W345
11 kVA	≥ 600 VDC	800x600x360	95	VPGC_1.AFE.1100600	VP600-18W361 / 28W345
22 kVA	≥ 350 VDC	880*600*440	160	VPGC_1.AFE.2200350	VP600-18W361 / 28W345
22 kVA	≥ 480 VDC	880*600*440	150	VPGC_1.AFE.2200480	VP600-18W361 / 28W345
22 kVA	≥ 600 VDC	880*600*440	150	VPGC_1.AFE.2200600	VP600-18W361 / 28W345

REMARKS:

- As DC-voltage the lowest value must be taken into account. If a battery for example works from 550 VDC to 700 VDC the correct version is “≥ 480 VDC”.
- Ask our sales team for further information

/ To connect to public grids

Available versions

Continuous power	DC-voltage	Width * Depth * Height [mm*mm*mm]	Weight [kg]	Item number	Matching VP inverter VP600 series3 and M-series3
44 kVA	≥ 350 VDC	880*600*440	283	VPGC_1.AFE.4400350	VP600-18W361 / 28W345
44 kVA	≥ 480 VDC	880*600*440	274	VPGC_1.AFE.4400480	VP600-18W361 / 28W345
44 kVA	≥ 600 VDC	880*600*440	274	VPGC_1.AFE.4400600	VP600-18W361 / 28W345
86 kVA	≥ 350 VDC	1110*800*450	427	VPGC_1.AFE.8600350	VP600-18W361 / 28W345
86 kVA	≥ 480 VDC	1110*800*450	426	VPGC_1.AFE.8600480	VP600-18W361 / 28W345
86 kVA	≥ 600 VDC	1110*800*450	396	VPGC_1.AFE.8600600	VP600-18W361 / 28W345

REMARKS:

- As DC-voltage the lowest value must be taken into account. If a battery for example works from 550 VDC to 700 VDC the correct version is “≥ 480 VDC”.
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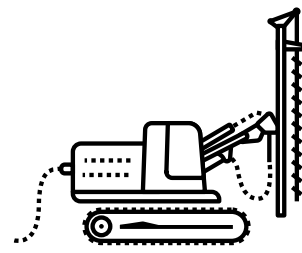


TYPICAL APPLICATIONS

And additional benefits we can offer
to support USP's

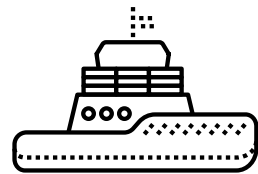
/ Machines at public grid

Typical applications



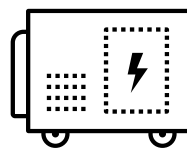
Cable supplied machines

With short moving range



Mobile machines

High power charging



Stationary power blocks

And genset



Possible applications are cable driven wheel loaders in mining applications, cranes and excavators, especially handling excavators and harbor cranes. And machines such as concrete pumps and mobile cranes which travel with diesel engine to point of operation and then work for hours on public grid. An optional small battery works as “power-shaver” and for travel to the next point of operation.

For ships and mobile machines, we can implement charging from public grid with high power. With and without galvanic isolation and solutions up to 600kW.

Stationary working power blocks or transportable in container for charging from public grid or feeding into existing local grids.

/ Possible added values

The FPGA-based current control in ARADDEX inverters enable a mighty added-value-function: an integrated VirtualSensor, which can be used in various mobile machines which are grid-supplied.



TORQUE ESTIMATION

VirtualSensor supplies torque estimations in high speed and high resolution, without any additional sensor. Therefore, the operation is more robust and reliable.



HIGH PERFORMANCE

VirtualSensor can be used to analyze and control the torque in milling, drilling, cutting, shredding .
To reach higher performance and safety.



OPTIMIZED OPERATION

VirtualSensor can be used to analyze the torque of a driven pump and even to estimate the viscosity of the fluid. For example, concrete pumps or flushing pumps.



REDUCE TIRE WEAR

Reduce tire wear of wheel-based applications, by a special slip control function. The function can help to reduce the wear and yearly costs for tires.

IV

CONTACT US

Contact us and challenge us
with your applications

/ Challenge us

Review of your application




Challenge us with your application, your demands and your ideas!

- Our engineers can calculate or support the project planning for your application.
- You receive the result as an electronic document: cornerstones of your project regarding electrification or hybridization including dimensioning done by our experienced project engineers.
- Contact our sales team for more information.

Thanks for your attention!

Optimized usability and performance for the best e-mobility



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