



The leader in production of
Power Electronics in Poland



The Company Overview

- ❑ MEDCOM is privately owned Polish Ltd company
- ❑ Founded in 1988 in Warsaw by four ambitious engineers
- ❑ Producer of customized advanced Power Electronics for various industries and applications
- ❑ Annual turnover of nearly € 20 millions*
- ❑ Employing over 100 people*
- ❑ With leading position in Poland, selling products world-wide
- ❑ Highly innovative, dynamic and customer oriented enterprise.

* For 2008

We continuously support our vision

- ❑ Investment in Research and Development on the level of 9% of annual turnover.
 - ❑ 27% of our staff is employed in R&D department
 - ❑ Our employees form a strong team of highly experienced and educated people with 6 PhD and 37 M.Sc. graduated engineers.
 - ❑ We continuously incorporate latest, leading edge technologies in to our solutions as well as our own patents such as
 - Amorphous and nanocrystalline magnetic cores,
 - Planar transformers
 - IGBT i HV IGBT drives
 - Micro-controllers on DSP
 - Fiber-optical coupling
 - internal communication and control standard – CAN, MVB
 - Dynamic, multi-level short-circuit protection etc.
 - Advanced computer simulation technology
 - ❑ Since the foundation we closely cooperate with scientific bodies:
 - Warsaw Technical University - Institute of Control and Industrial Electronics
 - Railway Scientific and Technical Centre
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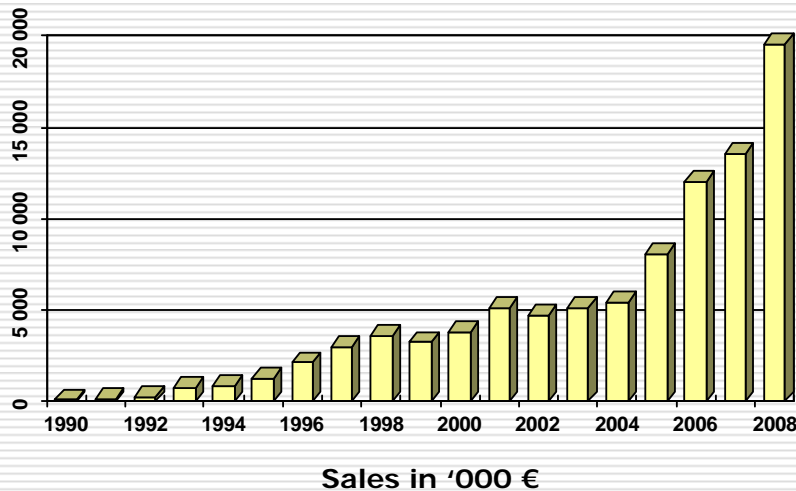
Awards and certificates

- ❑ MEDCOM has been implementing highest quality standards which have been confirmed with number of certificates
 - ISO9001, ISO9001:1996, ISO9001:2001, NCAGE: 1310H
- ❑ Thanks to innovative profile, highest quality standards and proven track-records we've been granted with numerous of awards – to name just few:
 - 1997 - Gold Medal at 69th Poznan international fairs for battery chargers. Medal of the SEP Chairman for Battery Earth-Fault-Meter MD-08
 - 1998 - INITIATIVE LEADER title in the group of small and medium-size companies , Medal for the SS and SST Static Transfer Switches at the ENEX'98 International Trade Show
 - 1999 - Award of the Prime Minister of Poland – Polish Product of the Future 1999 for the FA-2000 Active Harmonic Filter , Medal of the ENERGETAB'99 Int. Fairs for Active Filter
 - 2001 – Best Small Polish Enterprise by President of Republics of Poland
 - 2002 – The Europroduct Prize for the series FA and FA-3 Active Filters, Gold Medal at 74th Poznan International Fairs for Static Transfer Switches
 - 2002, 2003, 2006, 2007 – The Business Gazelle title (Business Pulse Magazine ranking.
 - 2004 – Promotional Logo of the Chamber of Commerce of Electro-technical Industry for Static Switches
 - 2005 – Distinction in prof. Czeslaw Jaworski competition on TRAKO'05 for Traction Inverter for asynchronous drives
 - 2008 – Forbes Diamond, selected as one of most valuable Polish enterprise – by Forbes magazine

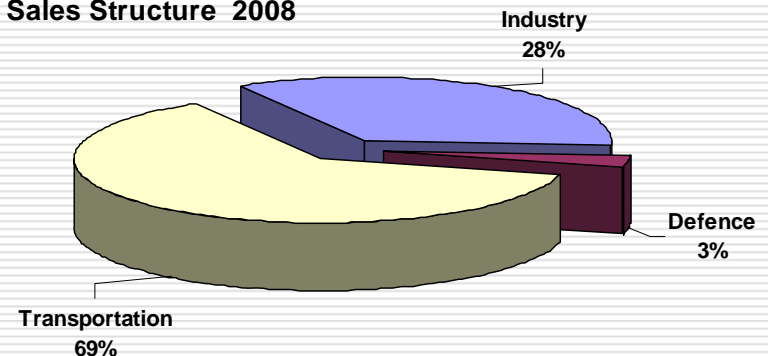


Sales structure

- Annual sales of nearly € 20 million in '08
- Dynamic sustainable growth, by average 35% annually for last 4 years, increasing the business three times since 2004 .
- Supplying various industries:
Transportation, Energy, Defense...
- Export sales stands for 25% of total revenue



Sales Structure 2008



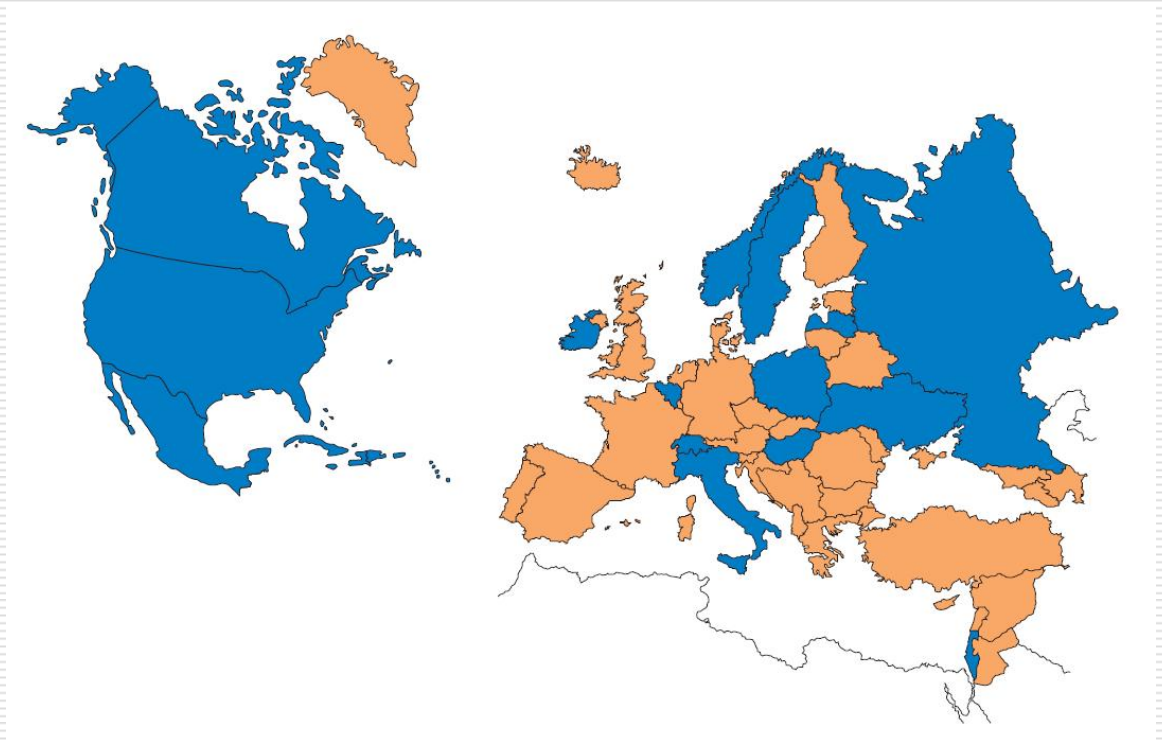
Geography of our activities

While having leading position in Poland we export our products to number of countries worldwide.

Our export sales stands for 25% of total revenue

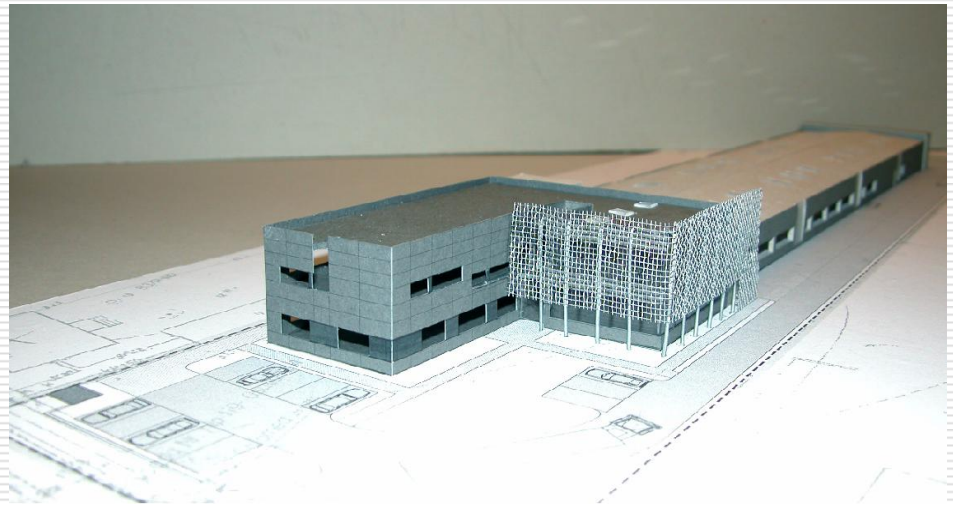
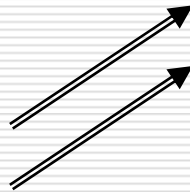
We export to:

- | | |
|---------------|-------------|
| - Norway | - Canada |
| - Sweden | - USA |
| - Latvia | - Mexico |
| - Ukraine | - Israel |
| - Hungary | |
| - Ireland | - India |
| - Belgium | - China |
| - Switzerland | - Malaysia |
| - Italy | - Taiwan |
| - Russia | - Singapore |



Next step – new facility

Dynamic development and high sales growth convinced management to move Company headquarters to a new location
Relocation will benefit in increase employment and production capacity



Currently:
1300 m² production space
100 employees

New facility by 2010:
4000 m² production space,
200 employees

Why our customers choosing us?

MEDCOM - advantages

Products

- ☐ Customised designs
- ☐ Low total cost of ownership
- ☐ Ensuring users operational safety
- ☐ High MTBF of our products
 - 320 000 h - battery chargers
 - 220 000 h - inverters
 - 80 000 h - static converters
- ☐ Application of the best quality selected elements and sub-assemblies
- ☐ Internal redundancy
- ☐ Dynamic Multilevel Protection
- ☐ Internal μ p diagnostic devices
- ☐ High technical efficiency of products
- ☐ Long warranty periods - up to 36 months

Organisation

- ☐ Customer oriented organization
 - ☐ 20 years of experience in designing and production of power electronics
 - ☐ Highly skilled and educated team
 - ☐ Using newest leading edge technologies and own patents
 - ☐ Innovative solutions
 - ☐ Quality incorporated in each of the design, production and service process
 - ☐ Permanent close cooperation with main academic and scientific institutes.
 - ☐ 24/7 technical service availability
 - ☐ Service training for customers
 - ☐ Consultations for customers
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Scope of products

„Our products doesn't look pretty – the beauty is inside...”
The Beautiful Mind



Industry & Energy

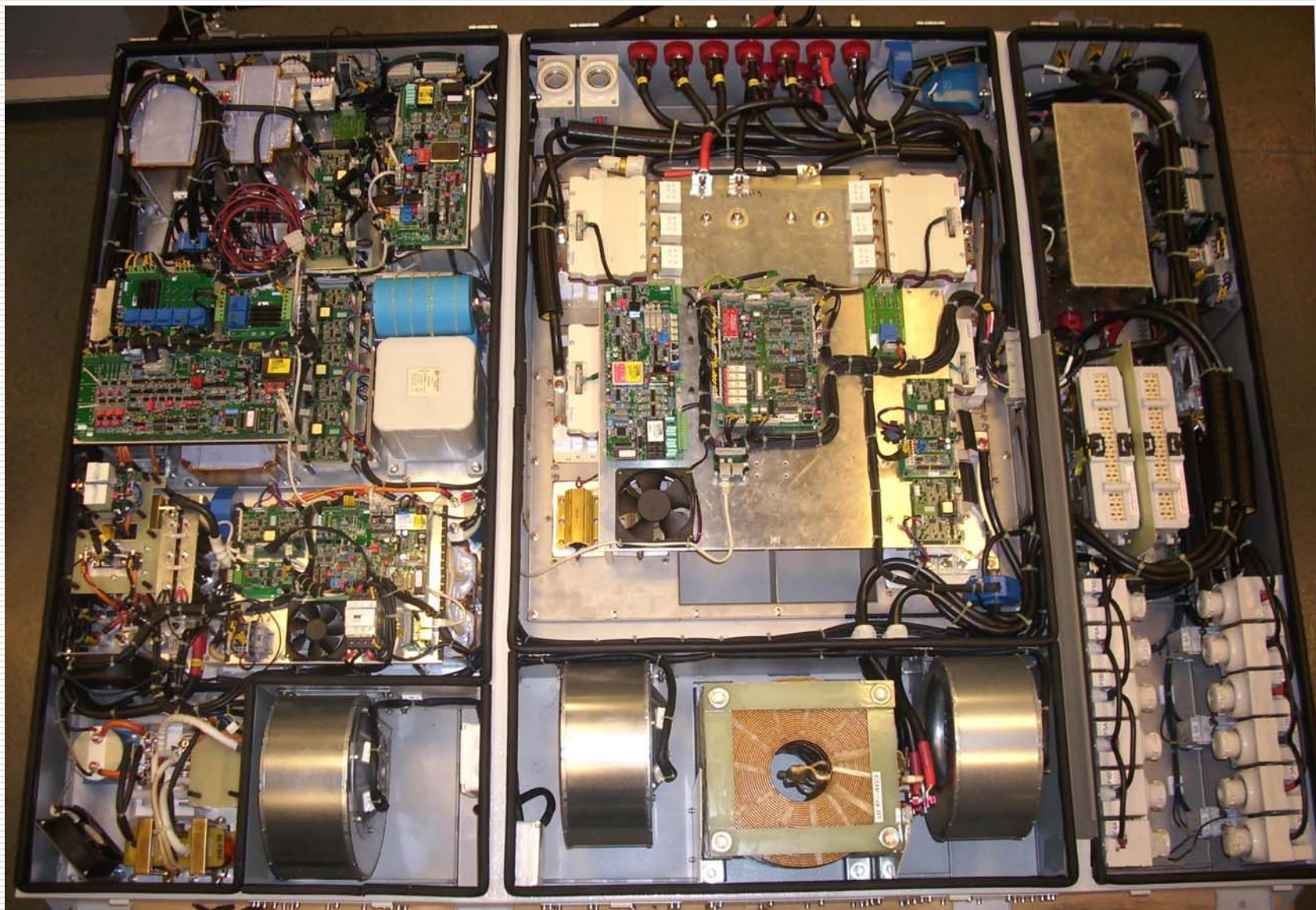
- Battery chargers
- Emergency power supplies
- Power supplies for industrial technological processes
- Active harmonic filters
- Inverters and UPS systems
- Motor drives with backup time
- Static Transfer Switches
- Solar and wind converters



Electric Traction

- Static converters
 - Inverters for asynchronous drives
 - HV and LW distribution boards
 - DC Power supplies
 - UPS for railway systems
 - DC/AC converters
 - Control systems for trains
 - Active Harmonic Filters for Substation
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Solution for Lublin



Solution for Lublin

Basic features:

1. Field Oriented Control Space Vector Pulse Width Modulation method of the motor operation control (FOC SV PWM); very effective anti-slip system
 2. HV distribution board incl. high speed circuit breaker, heaters control, pre-charge, and other circuits
 3. Pre-charge for static converter input.
 4. Mechanical separation of the inverter cooling system and electronic chambers in the inverter cast
 5. Two-step insulation of the electronic subassemblies.
 6. Double control of the insulation: daily (double level) and continuous.
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Solution for Lublin

Basic features:

7. Two level alarm signals from the insulation control circuit.
 8. Roof-mounted brake resistor with natural cooling.
 9. Self-ventilating motor made in EMIT Żychlin, isolated from the car body (plus insulation of windings to the motor cast, insulated shaft of the motor).
 10. Monitoring panel to display the inverter status as well as static converter operation. Alarm signals.
 11. CAN interface inside the car.
 12. Master control system controls also heaters operation.
 13. Washing tunnel operation mode, crossover control, pantograph lighting, AC distribution board for compressor.
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Solution for Lublin

Under development:

Static inverter 3x400 V, f_{var} supplied from vehicle battery (24 V)
to supply compressor and power steering pump.

Trolleybus with energy storage (battery),
able to run without catenary voltage.



Solution for Lublin

Thank you !
