

Improving energy, mobility and environment infrastructures for a sustainable world



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IV JORNADAS DO MEM-MEGI - ISEP

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Efacec
Arroiteia - Portugal

Agenda

- APRESENTAÇÃO DA EMPRESA
- PRINCIPAIS PRODUTOS
- PRINCIPAIS MERCADOS
- ESTRUTURA ORGANIZACIONAL DA EMPRESA
- EXPERIÊNCIAS ANTERIORES COM ESTÁGIOS UNIVERSITÁRIOS
- PROPOSTAS DE NOVOS ESTÁGIOS PARA REALIZAÇÃO DE TESES DE MESTRADO

...working everyday towards its goals with the commitment of its employees wherever they are...



2500
Employees worldwide



≥ 16,4M€
R&D+I activity



More than 220
employees on R&D+I

Efacec Academy *Lean*
Master Class

Efacec has activity in three business segments

Efacec Power Solutions
EPS

Products

Transformers

Switchgear

Service

Automation

Systems

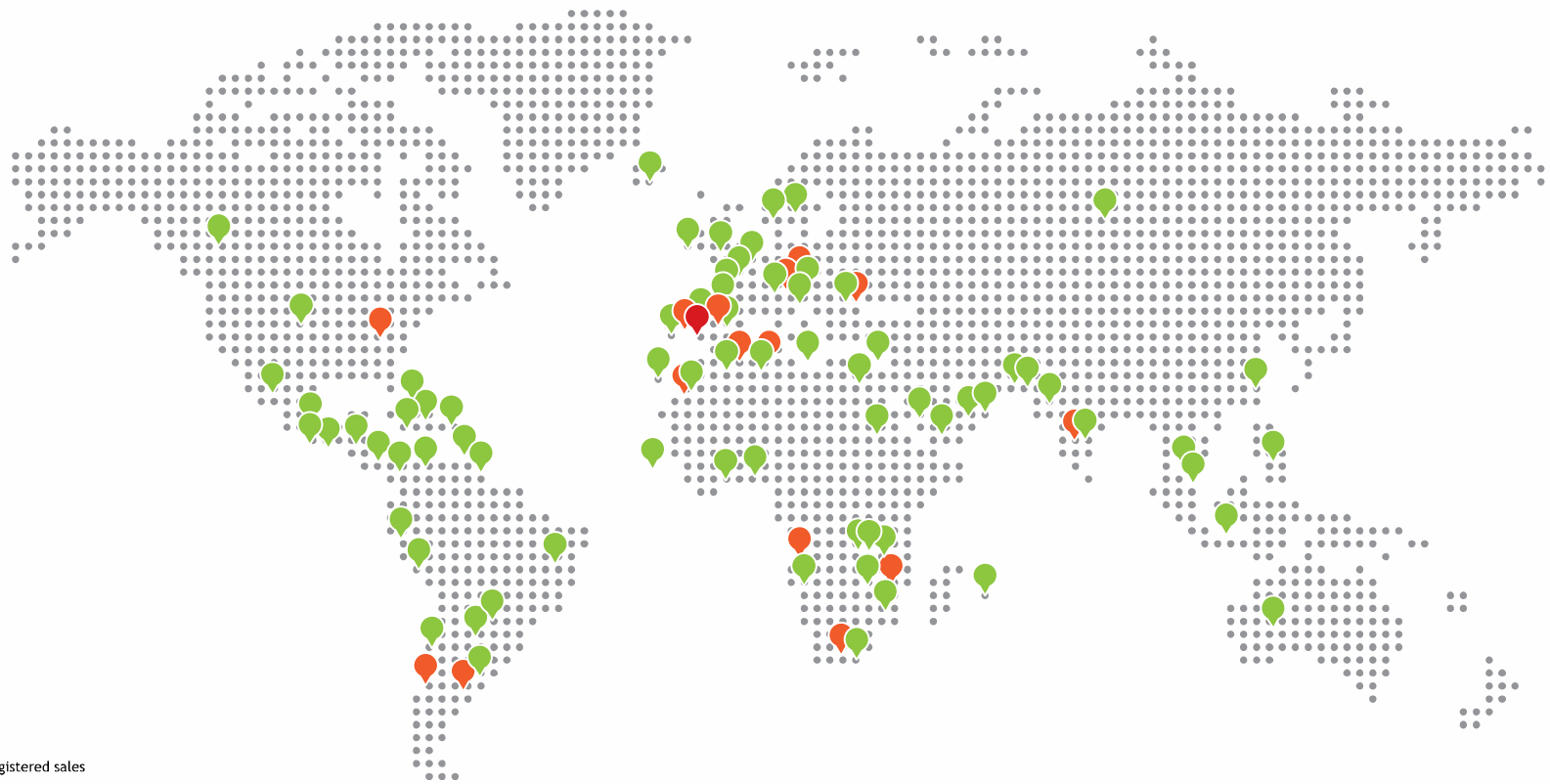
Energy




Environment

Transportation

Electric
Mobility

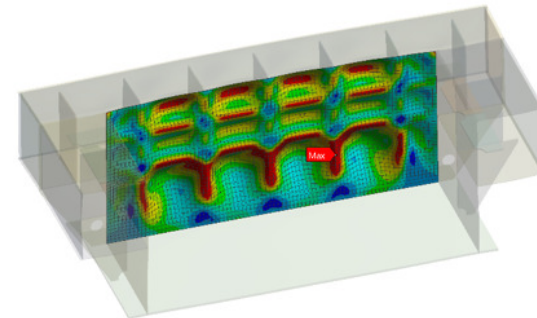
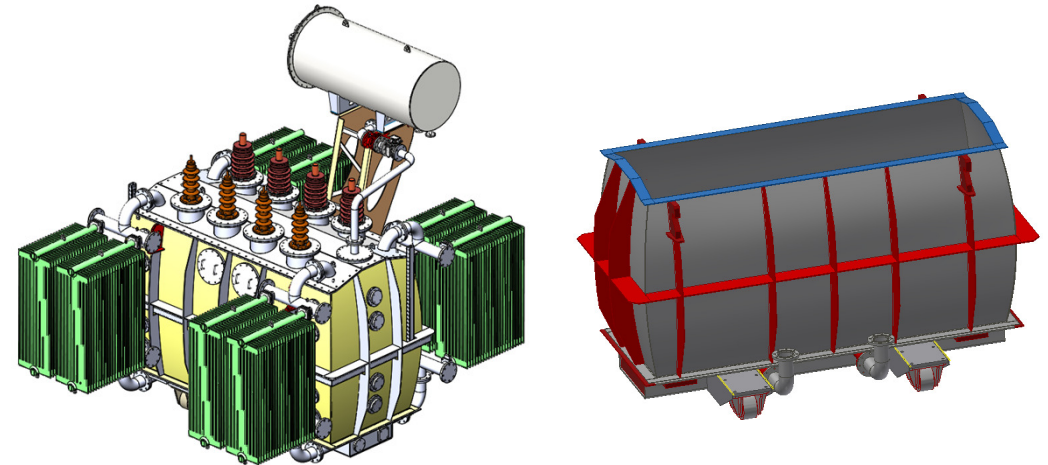
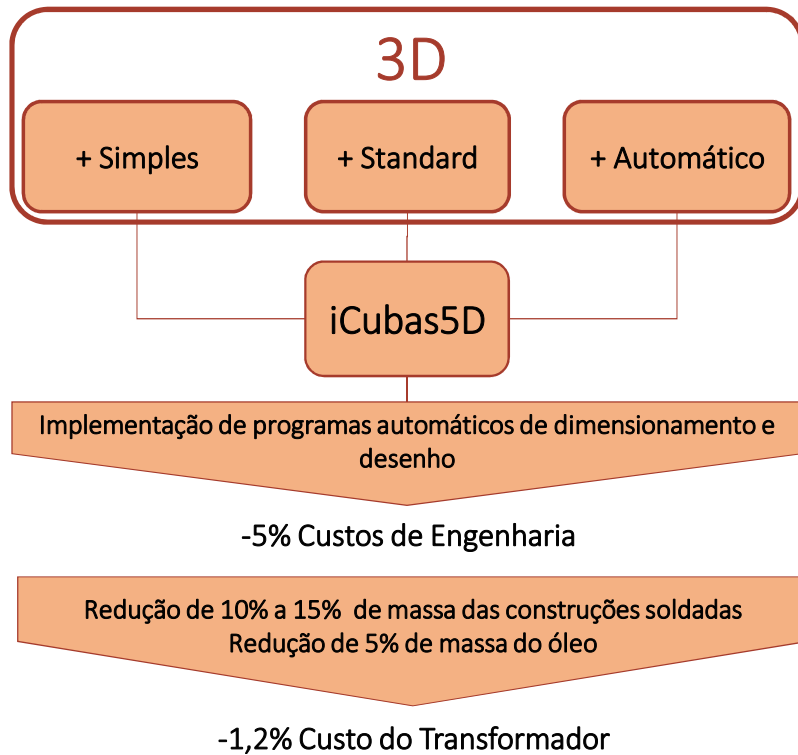
The Company has a global footprint on more than 65 countries

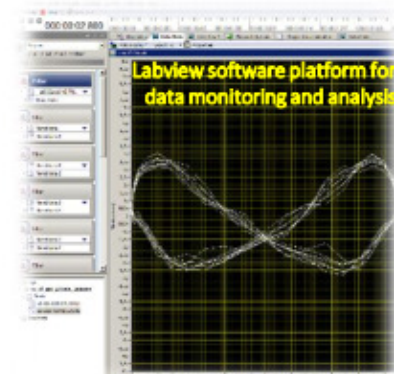
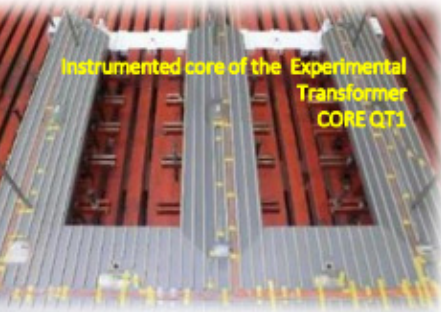
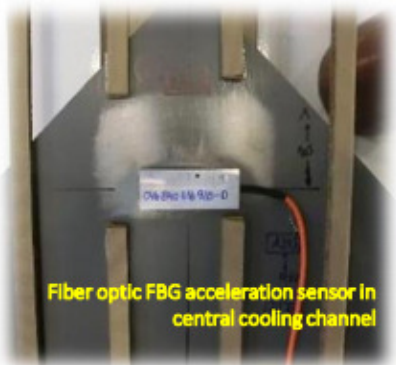


-  Headquarters
-  Factory Units and Delegations
-  Countries to which Efacec Core registered sales



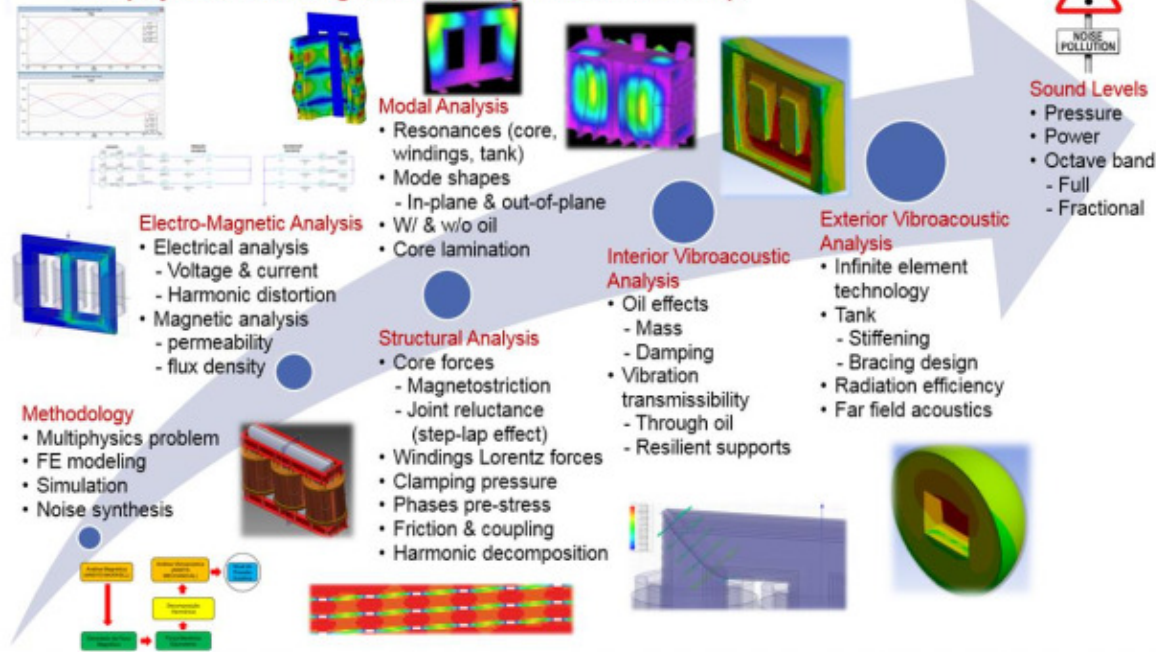
Tecnologia e Inovação - Exemplos





MULTIPHYSICS MODELING AND ANALYSIS

Multiphysics modeling and noise synthesis roadmap



EMPIRICAL / SEMI-ANALYTICAL NOISE CALCULATION

No-load/Core Noise (voltage excitation)

$$\bar{L}_{pA,LN} = 1.9 + 21B + 20 \log \frac{E}{25.4}$$

$$\bar{L}_{WA,LN} = \bar{L}_{pA,LN} + 10 \log \frac{S}{S_0}$$

B - Magnetic flux density /T
 E - Clearance between axis /mm
 S - Area of measurement surface /m²
 S_0 - Unit reference area /m²

$\bar{L}_{pA,LN}$ - Sound pressure level (ONAN) /dB(A)
 $\bar{L}_{WA,LN}$ - Sound power level (ONAN) /dB(A)

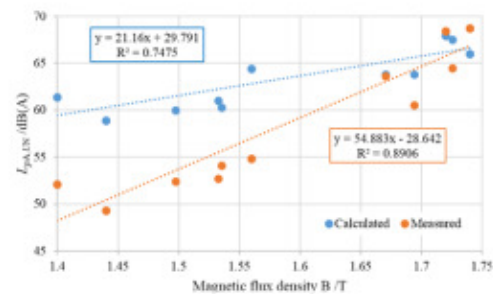
Load Noise (current excitation)

$$\bar{L}_{WA,LN} = 39 + 18 \log \frac{S_1}{S_0}$$

$$\bar{L}_{pA,LN} = \bar{L}_{WA,LN} - 10 \log \frac{S}{S_0}$$

S_1 - Rated power /MVA
 S_0 - Unit reference power /MVA

$\bar{L}_{WA,LN}$ - Sound power level (ONAN) /dB(A)
 $\bar{L}_{pA,LN}$ - Sound power level (ONAN) /dB(A)



NOISE

NO-LOAD NOISE

- CORE NOISE
 - Magnetostriction
 - Magnetic forces
- COOLING NOISE

LOAD NOISE

- Lorentz forces





Thank you

