

SAES Group

March 26, 2014

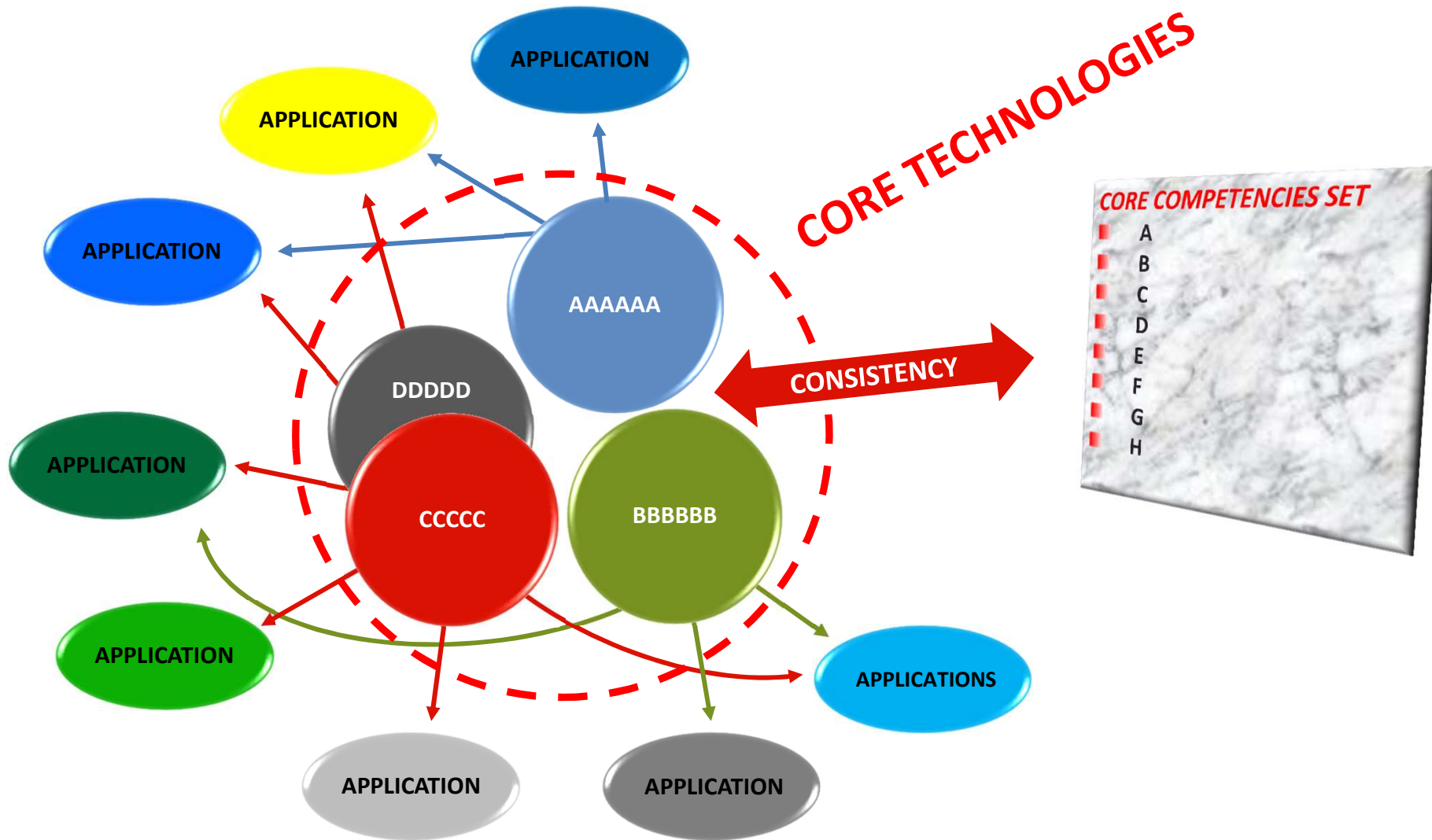


making **innovation happen**, together

The SAES Group

- **SAES Business Model**
- Technological Portfolio
- Group Organization
- Financial Results

SAES Value & Business Model



Core Business and Vision

Pioneering the development of getter technology, the SAES® Group is the world leader in a variety of scientific and industrial applications where **high/ultra-high vacuum** conditions or **pure metal vapors** or **ultra-pure gases** are required



Starting in 2004 the SAES® Group has expanded its technological portfolio into **knowledge-intensive materials**, the **NiTiNOL**, whose super elastic properties are applied to medical devices while **shape memory properties** are applied in industrial and consumer electronics applications.

Growth Strategy

Organic Growth based on Research & Innovation:

- Consolidation of existing technology
- Scouting of new Applications
- Development of new technologies
- About **10%** of net sales allocated to R&I every year
- State-of-the-art corporate laboratories covering a surface of over **3,300 sq. m.**
- **100** highly skilled people engaged in R&I activities (50% graduated -> 20% PhD)
- Cooperation with Universities and R&D centers



Growth Strategy

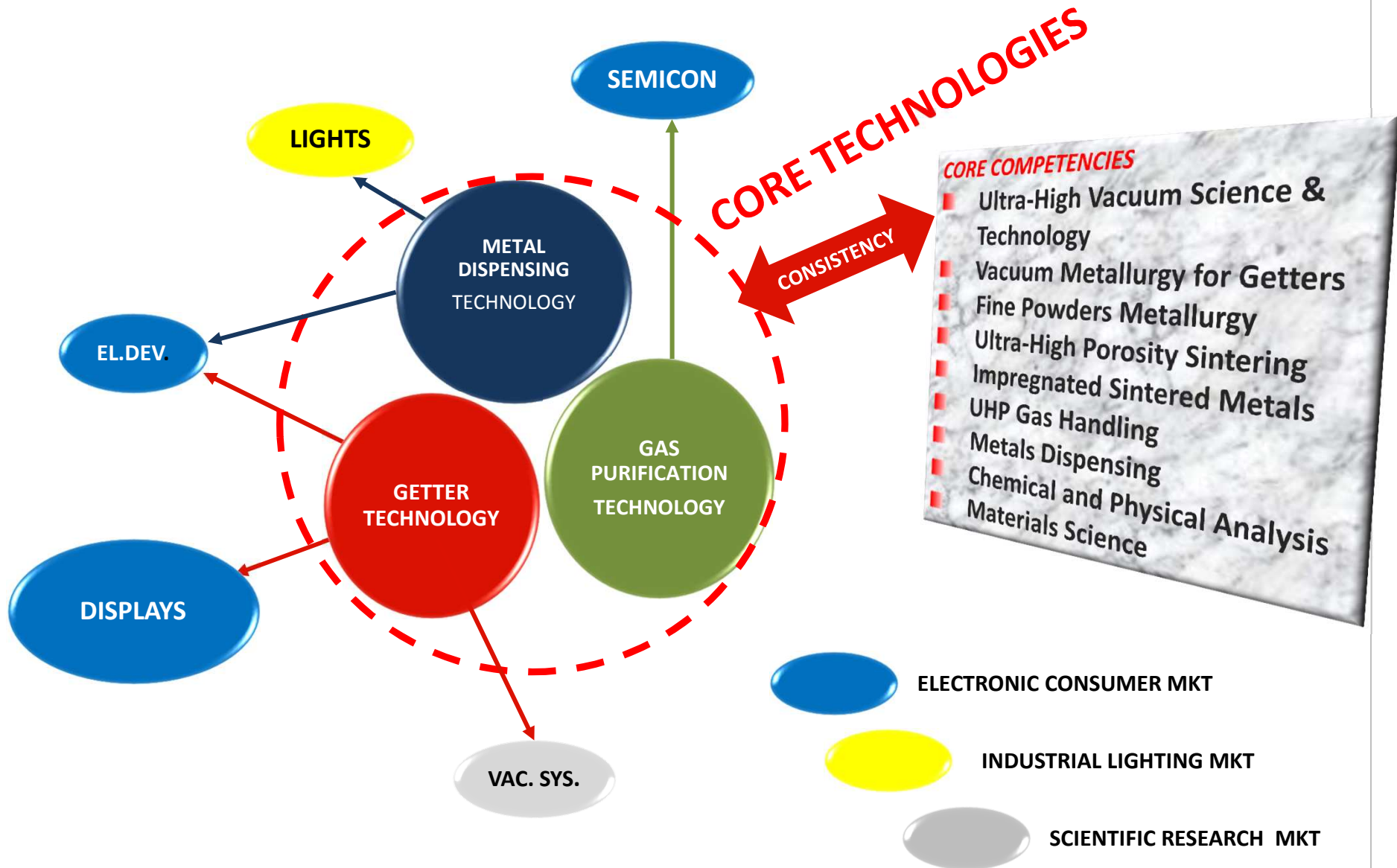
Inorganic growth, acquiring Companies or Technologies complementary to our technological portfolio:

- SMA Industrial development launched in 2004
 - Acquisition of SAES Smart Materials, Inc.
 - Acquisition of Memory Metalle GmbH
 - Acquisition of Memry Corporation
- Acquisition of NanoZeolite Technology
- Acquisition of P&E hydrogen purification technology



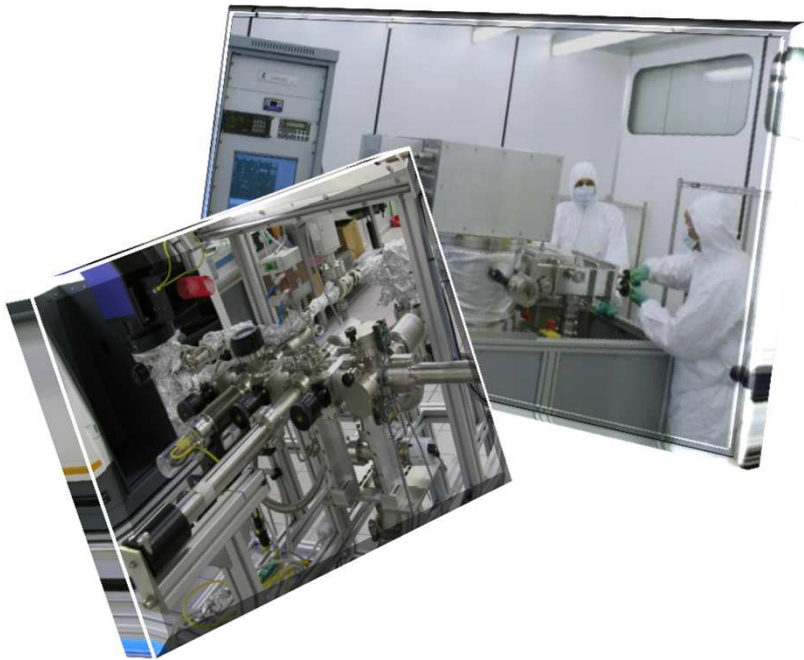
The SAES Group

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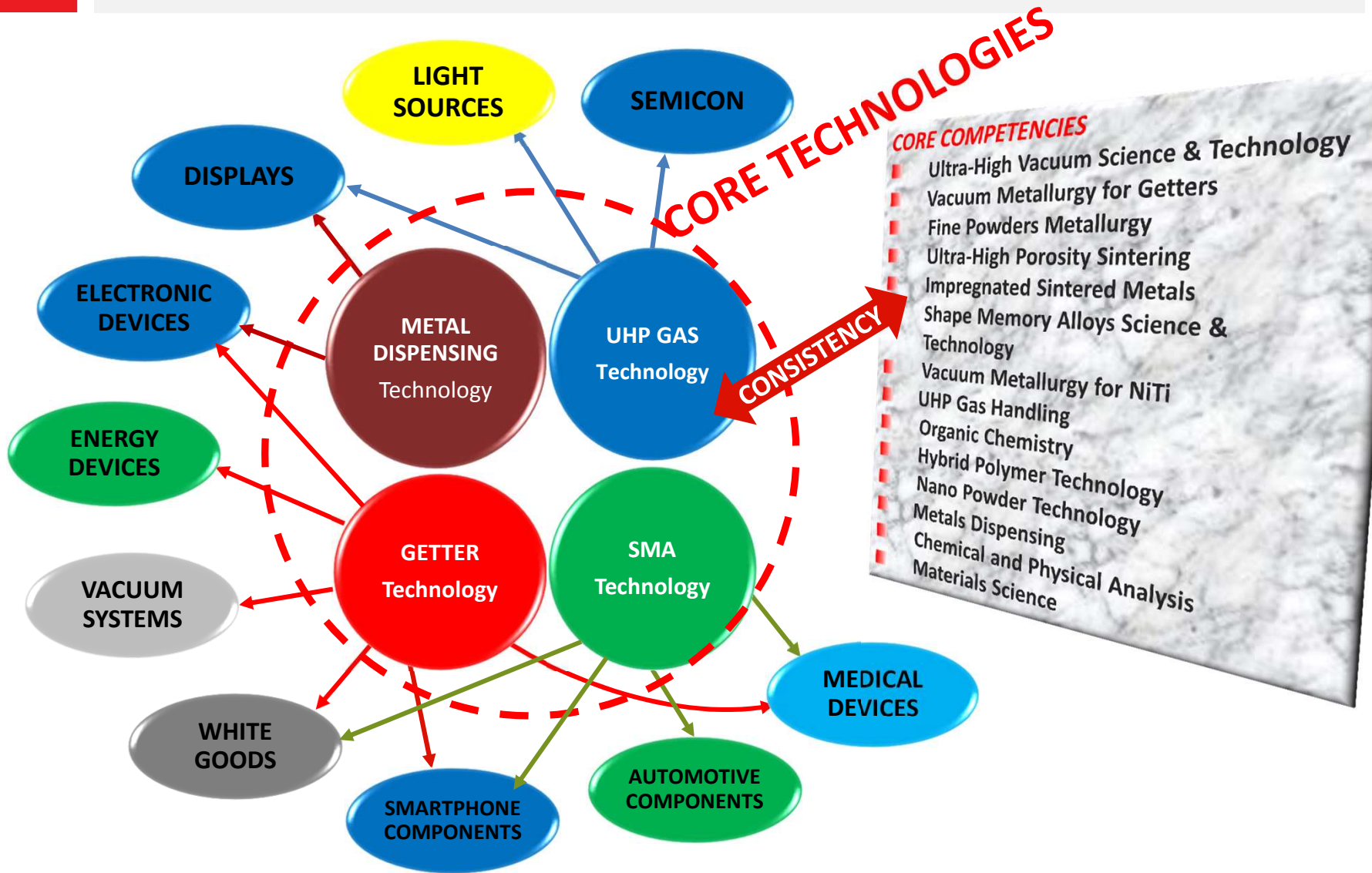
Expansion of Core Competencies

- Vacuum Metallurgy for Getters
- Fine Powders Metallurgy
- Thin Film Deposition
- Metals Dispensing
- Ultra-High Vacuum Science & Technology
- UHP Gas Handling



- Organic Chemistry
- Hybrid Polymer Technology
- Ultra-High Porosity Sintering
- Impregnated Sintered Metals
- Nano Powder Technology
- Shape Memory Alloys Science & Technology
- Vacuum Metallurgy for NiTi
- Chemical and Physical Analysis
- Materials Science

SAES in 2014



Main markets

Consumer Electronics



Medical Devices



Scientific & Research Systems



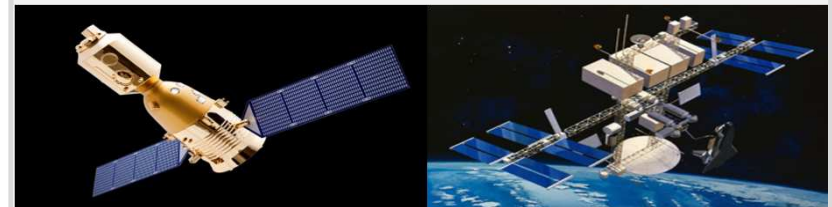
Automotive



Lighting



Telecommunications



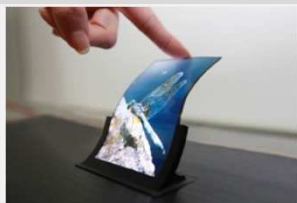
Final applications with high growth potential



Vacuum systems
for
particle accelerators and *diagnostic equipment*



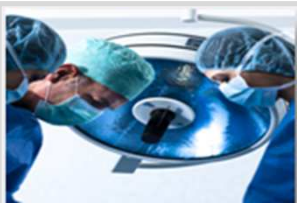
SMA actuators
for
automotive and *miniaturized cameras for mobile phones*



NANO getters and sealant
for
OLED and *packaging*



Safety devices
for
Lithium batteries



Innovative SMA devices
for
medical applications



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Group Organization

The SAES Group serves customers through four global **Business Units (BU)**.

Each Business Unit addresses different markets and applications, aiming at the best customer satisfaction through the support of a world-wide based technical sales and service network.



Industrial Applications BU

- LIGHT SOURCES
- ELECTRONIC DEVICES
- VACUUM SYSTEMS & THERMAL INSULATION
- ENERGY DEVICES
- SEMICONDUCTORS



Shape Memory Alloys BU

- MEDICAL DEVICES
- INDUSTRIAL APPLICATIONS for Consumer Electronics, Domestic, Automotive



Information Displays BU

- ORGANIC LIGHT EMITTING DIODES DISPLAYS (OLEDs)
- LIQUID CRYSTAL DISPLAYS (LCDs)
- COLOR CATHODE RAY TUBES (CCRTs)



Business Development BU

Group Organization

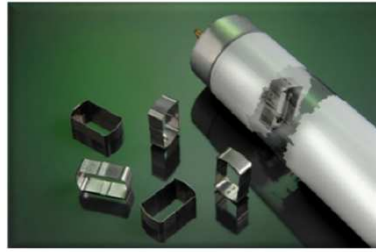
LIGHT SOURCES

SAES Group serves the Light Sources Industry with:

- Non-evaporable getters for Discharge Lamps
- Advanced low dose Mercury dispensers for Linear, Circular and Compact Fluorescent Lamps
- Thermal management engineered parts for HB LEDs



Products for
Fluorescent Lamps



Total Quality Shield
TQS®

- Major applications:
- ✓ Street Lighting
 - ✓ Industrial and Domestic Lighting
 - ✓ Commercial Lighting
 - ✓ Special Lighting



Group Organization

ELECTRONIC & PHOTONIC DEVICES

SAES Group offers **sophisticated solutions** to a variety of devices:

- Getters and dispenser cathodes for vacuum tubes for medical imaging, energy, telecom and avionic applications
- Alkali Metal Dispensers for medical, defense and industrial imaging
- Thermal management engineered parts for industrial, defense and telecom applications



Porous Getters



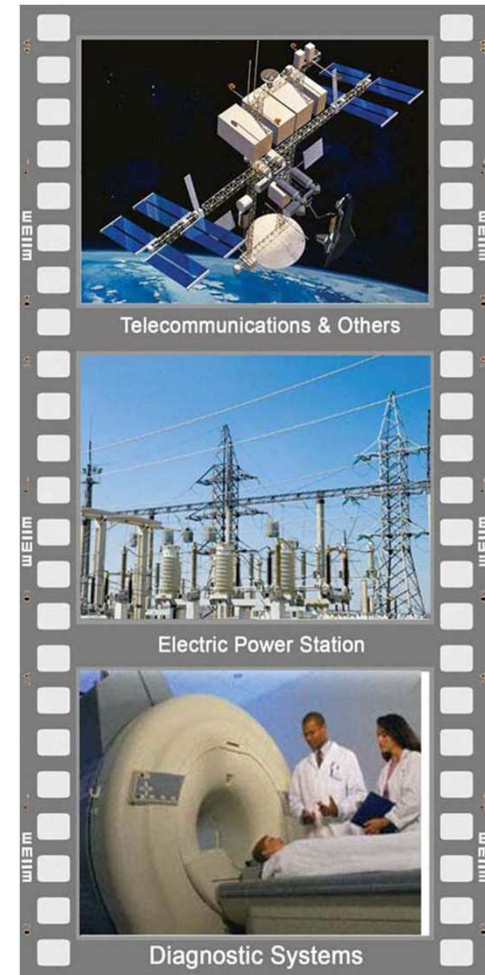
Alkali Metal Dispensers and Cups



Dispenser Cathode

Main applications:

- | | |
|------------------------------------|-----------------------------------|
| ✓ X-Ray Tubes & Systems | ✓ Pressure Transducers |
| ✓ Image Intensifiers | ✓ Microwave Power Tubes |
| ✓ Vacuum Switches and Interrupters | ✓ Gas Lasers |
| ✓ Travelling Wave Tubes | ✓ High Power Semiconductor Lasers |



Group Organization

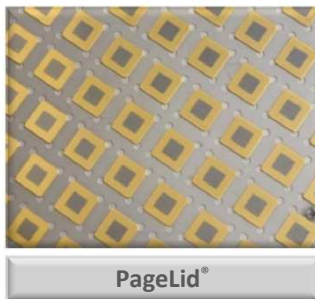
SENSORS & DETECTORS

To all the sensors and detectors under vacuum SAES Group offers **sophisticated solutions** :

- Getters for cooled IR sensors
- Thick film getters for Micro Electro Mechanical Systems (MEMS) resonant systems
- Thin getter film on metallic lids for IR and resonant MEMS systems
- Silicon Wafers with patterned getter films for MEMS devices for consumer electronics
- Dispensable driers for optical and resonant MEMS devices
- Micro Alkali Metal Dispensers for MEMS atomic clocks



PageWafer®



PageLid®

Main applications:

- ✓ MEMS Inertial Sensors
- ✓ Thermal Imaging Systems
- ✓ MEMS Pressure Sensors
- ✓ RF Switches
- ✓ MEMS Atomic clock
- ✓ MOEMS and Optical Switches



Thermal Imaging Systems

MEMS Gyroscope

Consumer Electronics

Group Organization

VACUUM SYSTEMS

Expertise in gas-surface interaction, vacuum technology, materials' outgassing and permeation has led SAES Group to the development and production of **non-evaporable getter pumps** and **getter coating** of vacuum chambers for particle accelerators

- ✓ Particle Accelerators and High Energy Labs
- ✓ Analytical Instrumentation
- ✓ Processing Tools for semiconductor manufacturing
- ✓ Vacuum Systems

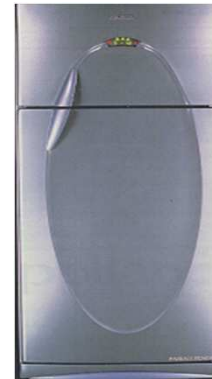


Group Organization

THERMAL INSULATION

Getter solutions for vacuum thermally insulated devices

- ✓ Solar Collectors
- ✓ Vacuum Bottles and Dewars
- ✓ Vacuum Insulated Pipes for Oil Extraction
- ✓ Vacuum Insulated Panels for refrigerators
- ✓ Cryogenic Applications
- ✓ Vacuum Insulated Glasses



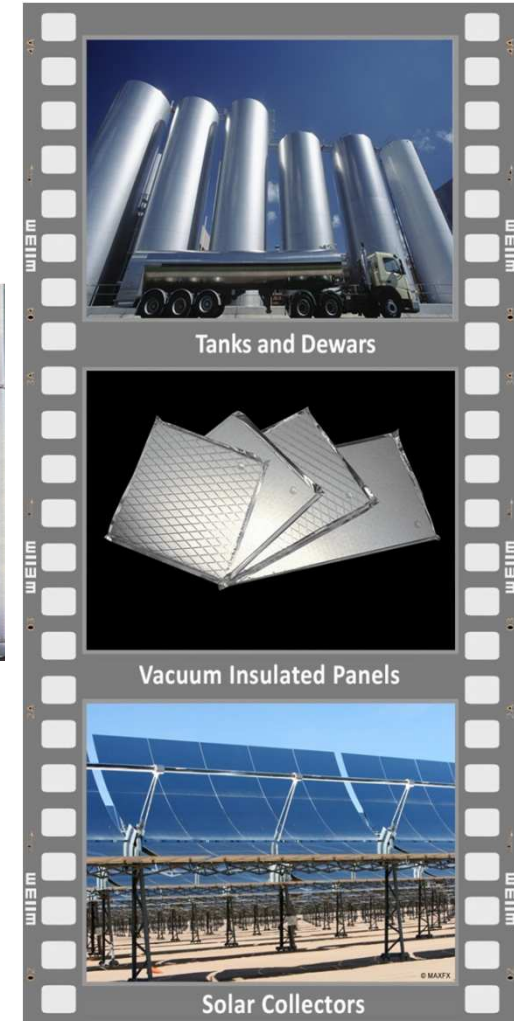
Smart Combo



Combo



Pills



Tanks and Dewars

Vacuum Insulated Panels

Solar Collectors

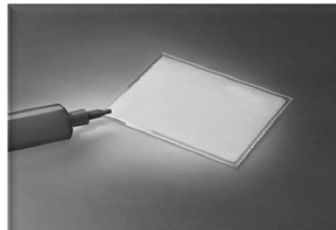
Group Organization

ENERGY DEVICES

SAES Group is supporting the photovoltaic industry with an **innovative edge sealant (B-Dry®)** for guaranteeing long lifetime to photovoltaic modules and **dispensable driers** for the growing organic photovoltaic systems



B-Dry®



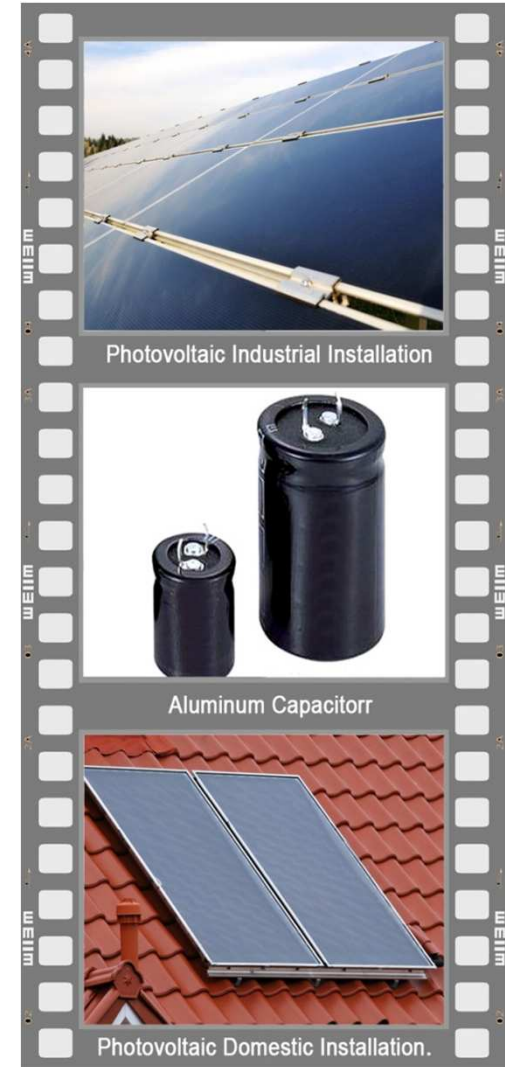
Dispensable Dryer

SAES starts serving the Energy Storage Industry with gas management systems for:

- ✓ Aluminum Capacitors
- ✓ Super-capacitors
- ✓ Lithium Batteries



Hydrogen Getters for
Capacitors



Photovoltaic Industrial Installation

Aluminum Capacitors

Photovoltaic Domestic Installation.

Group Organization

SEMICONDUCTORS

Leveraging the unique competence of gas impurities sorption and gas purification equipment design, SAES Group is the **world leader in gas purification technologies**.

SAES has the largest offer of equipment solutions to purify all gasses for the manufacturing of silicon based semiconductor devices, LEDs, Fiber optics, Display Industry (LCDs, OLEDs) and photovoltaic devices.



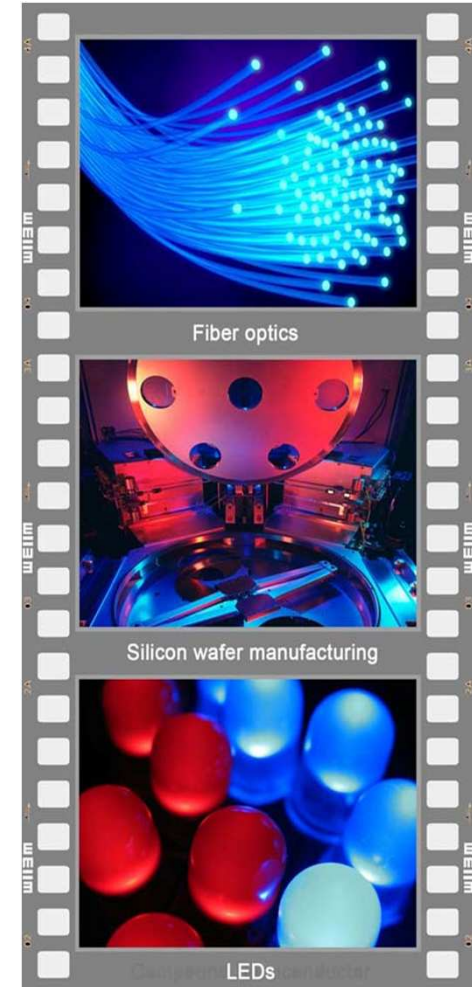
Point of Use



MegaTorr



Customer Service



Fiber optics

Silicon wafer manufacturing

LEDs

Group Organization

MEDICAL DEVICES

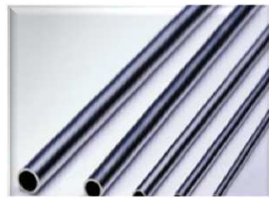
Shape Memory Alloys, or SMAs, belong to an extensive range of metal alloys showing unique **super-elasticity**, **shape memory properties** and **extremely high bio-compatibility** characteristics.

SAES Group develops and sells a large variety of NiTi based products for Medical Devices:

- ✓ Semi-finished products (wires, tubes, sheets, coils)
- ✓ Parts for stents
- ✓ Parts for spinal clips
- ✓ Parts for cardiac valves
- ✓ Parts for guidewires



NiTiNol Catheter Shafts



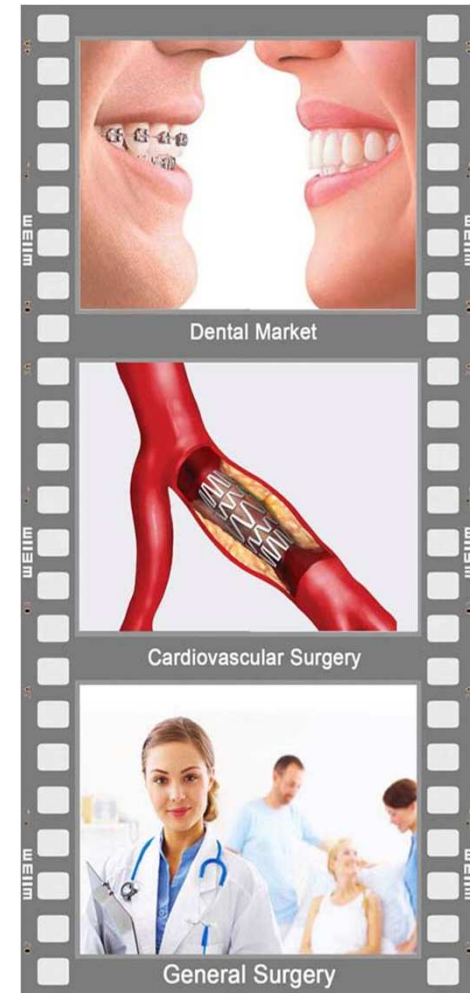
Tubes



NiTiNol Wires



Stent Graphs



Dental Market

Cardiovascular Surgery

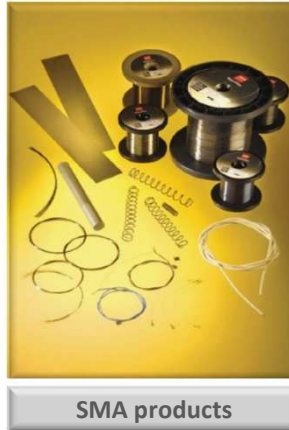
General Surgery

Group Organization

SMA Industrial Applications

SAES has been the first Company able to value and exploit the full potential of the Shape Memory Alloys (SMA) **properties of NiTiNol** by providing all types of SMA NiTiNol parts and devices for:

- ✓ Consumer electronics
- ✓ Automotive
- ✓ Domotic
- ✓ White Goods



SAES Group through the Joint Venture **Actuator Solutions GmbH**, in Germany, also develops and produces a wide range of **shape memory alloys actuators** used in consumer electronics, automotive and industrial applications:



Global Presence



- Worldwide-based sales and service network through Subsidiaries located in Europe, Asia, USA
- Over 900 employees
- 10 manufacturing facilities

A Customer-focused Approach

Nearly **2,000 active customers in 5 continents**, spanning from blue chip companies to business start-ups, Universities and R&D centers

70 years of expertise in partnering with customers for the engineering of **fully customized solutions**

High flexibility in product development, fine-tuning and manufacturing, to foster emerging and **forefront application technologies**

Technical service network and **CRM** structure **supporting customers' innovation** 24 hours a day

Quality, Environment, Safety & Ethics



**A Global
Quality
Approach**

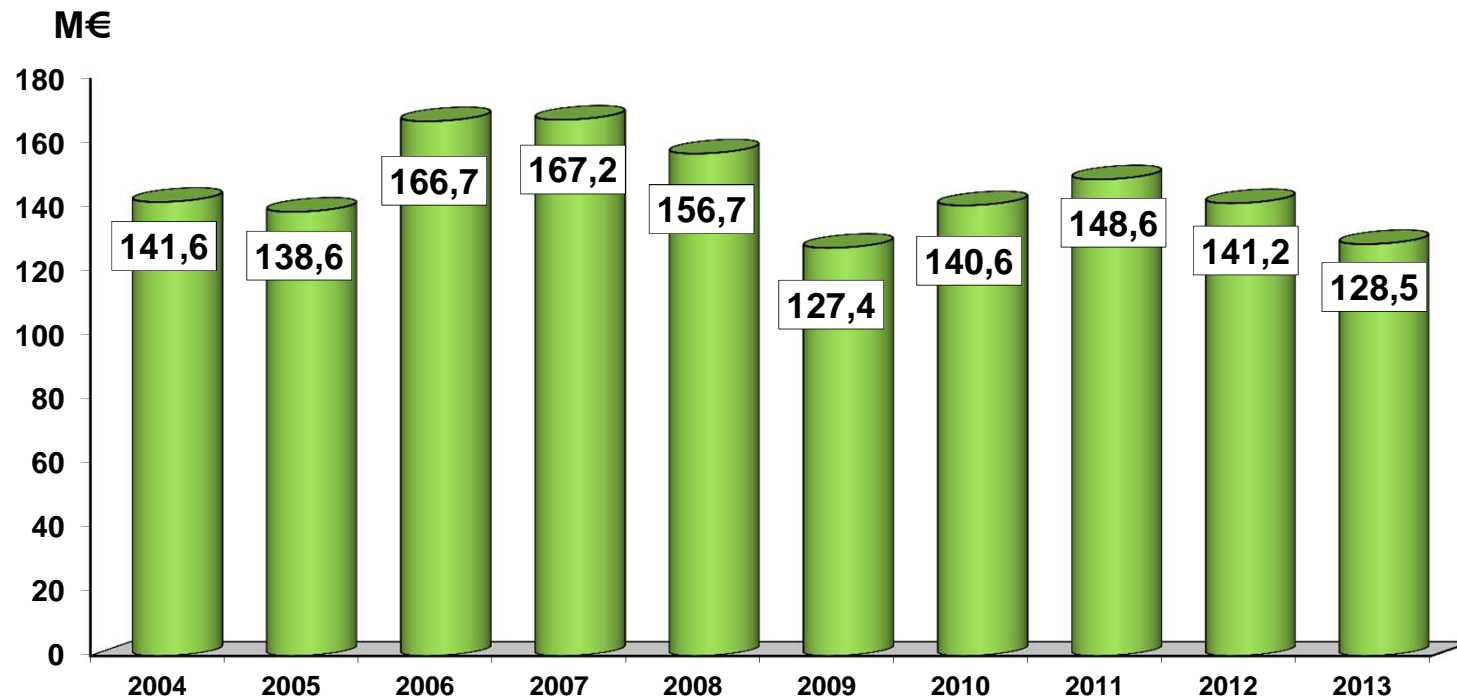
Total Quality Management
is our key approach for
*innovative, safe and
environmentally friendly*
products development



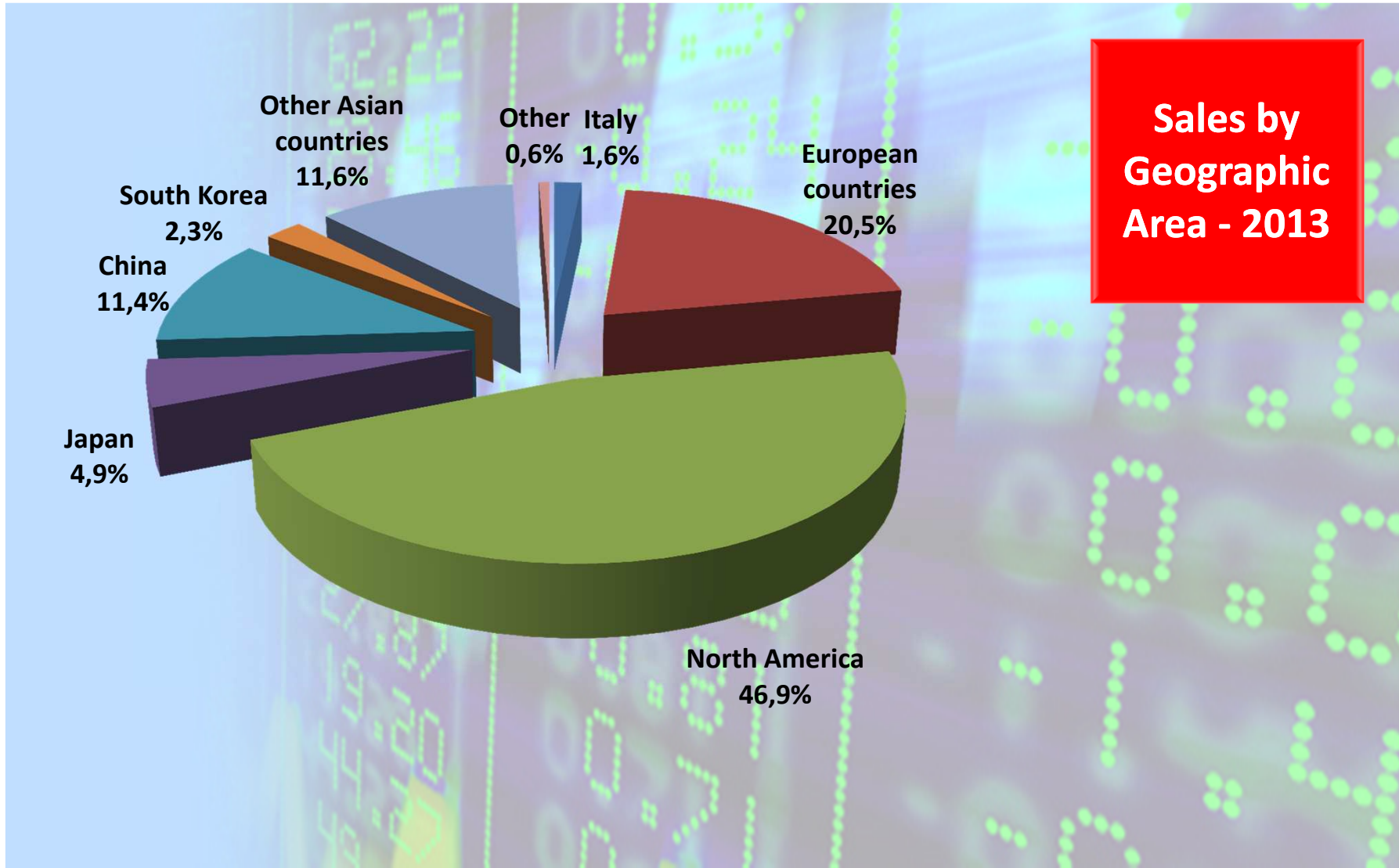
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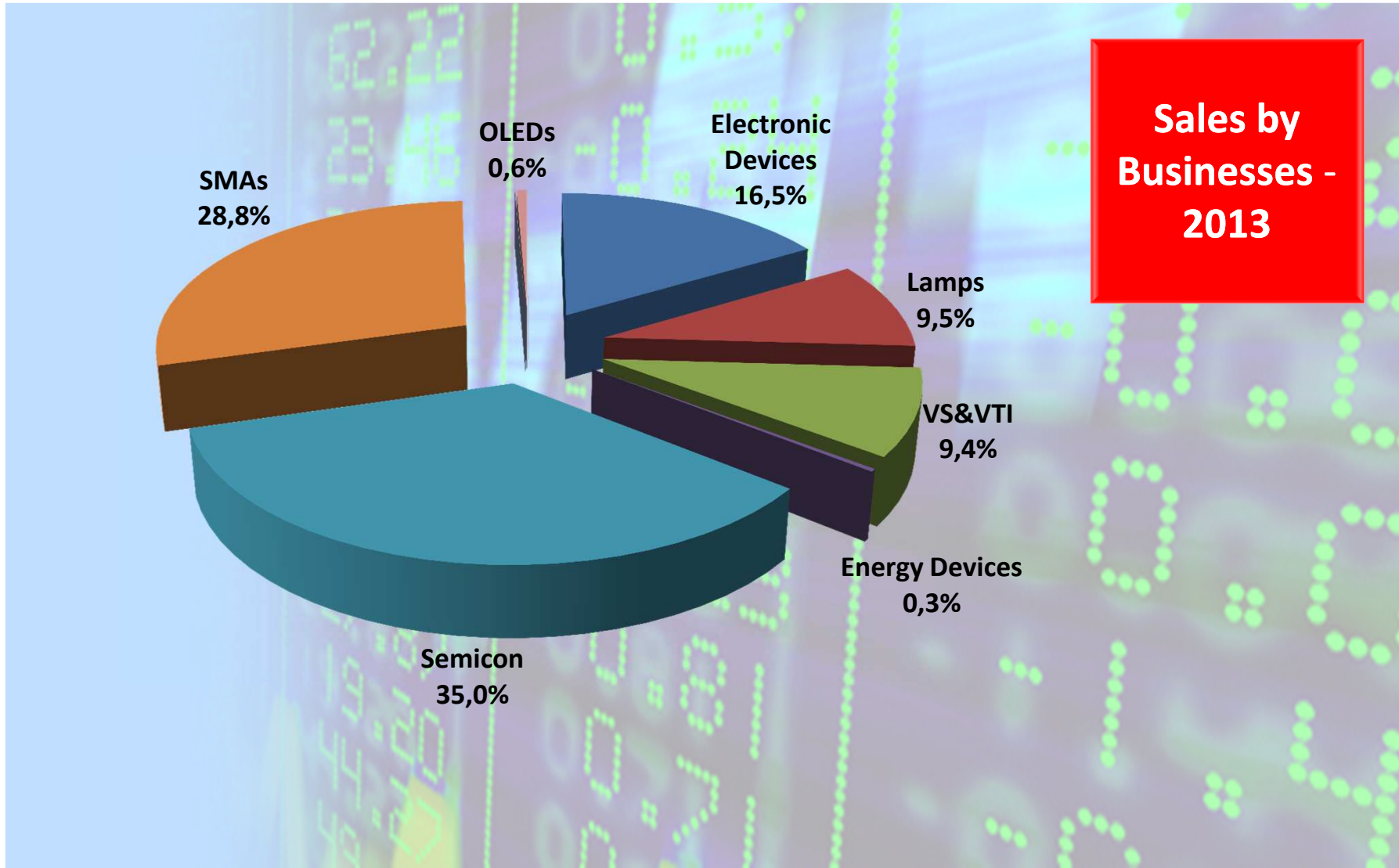
SAES Group Consolidated Sales



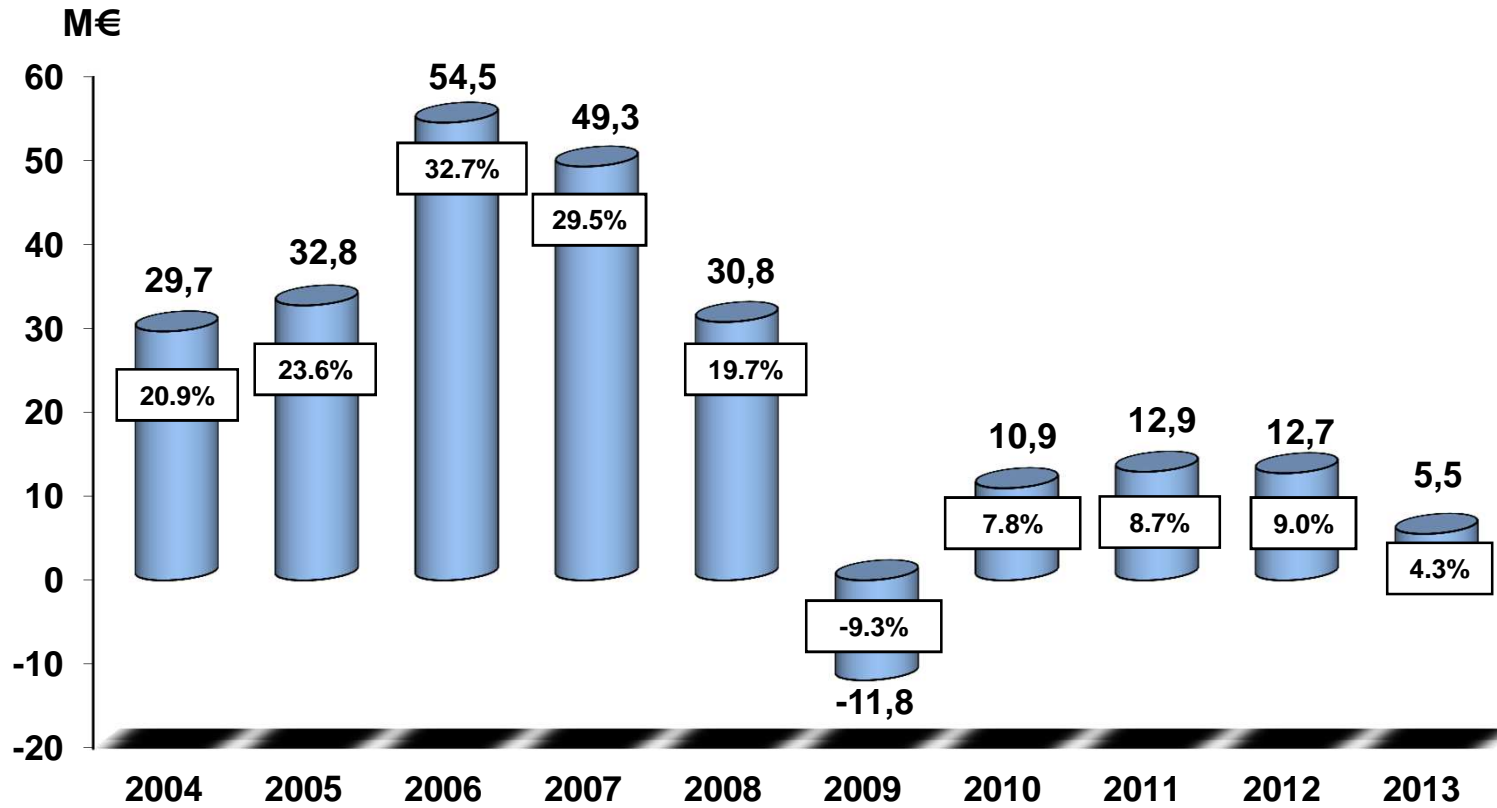
SAES Group Consolidated Sales



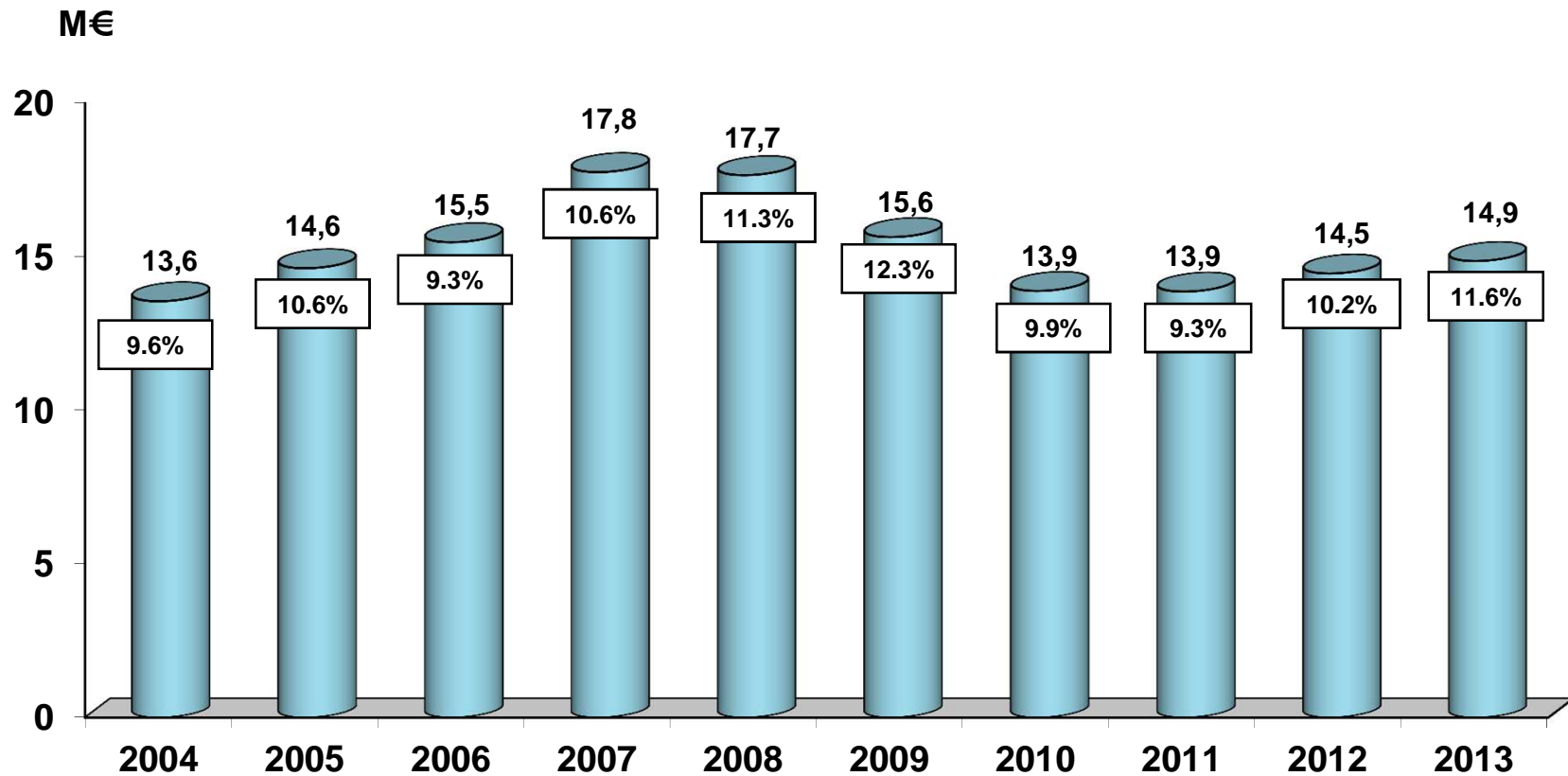
SAES Group Consolidated Sales



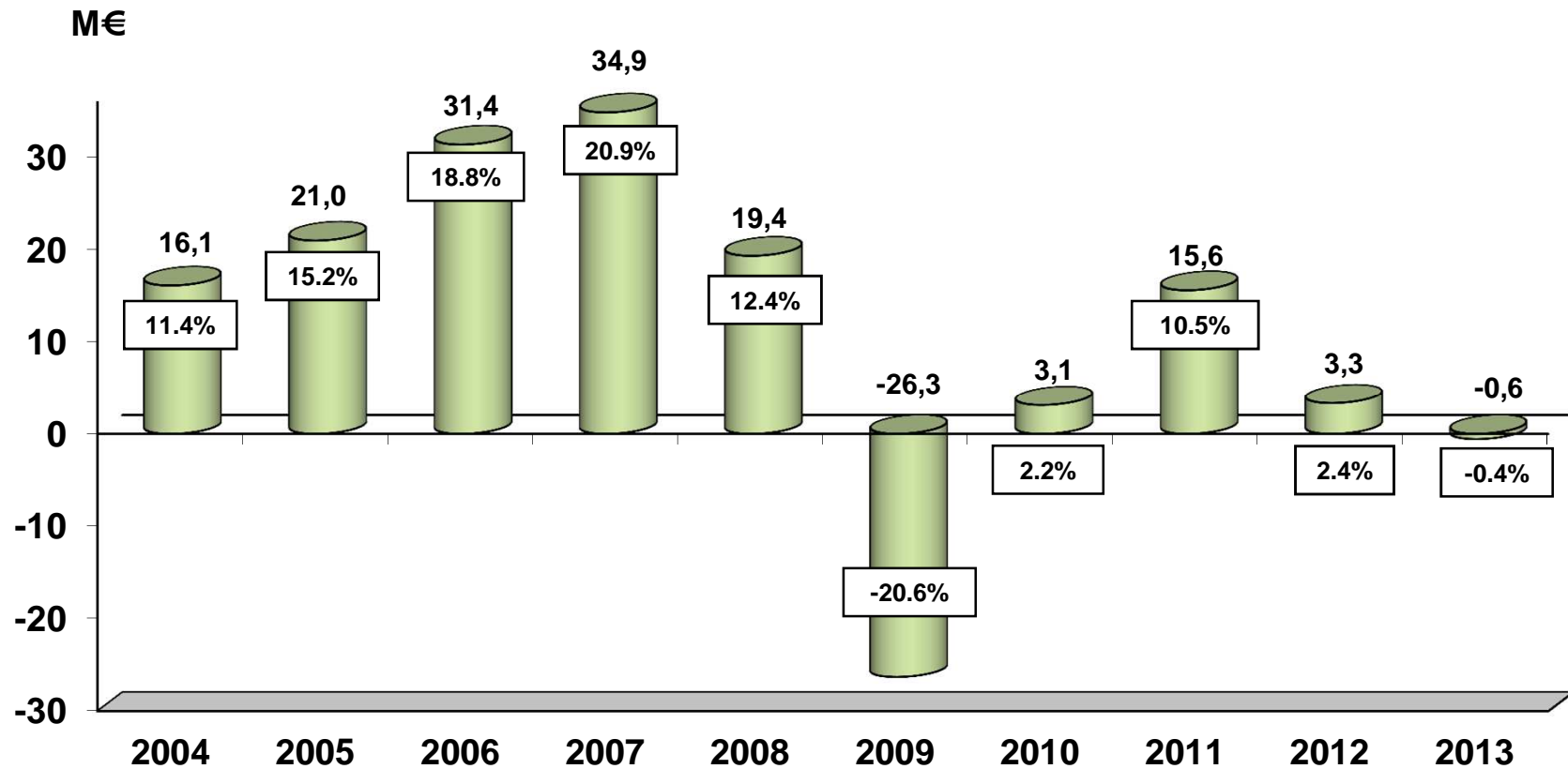
Consolidated Operating Income (% on net sales)



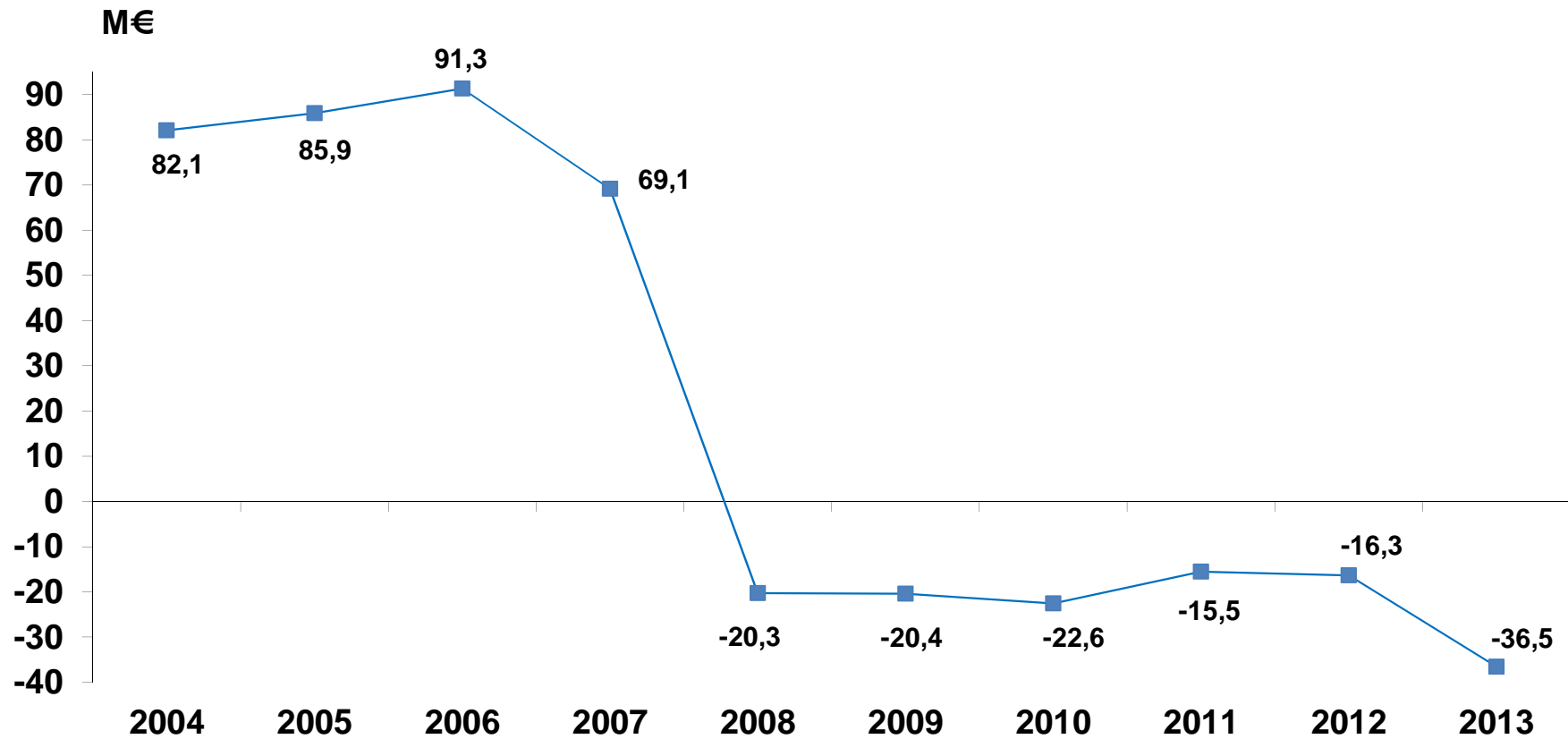
Research & Development Expenses (% on net sales)



Consolidated Net Income (% on net sales)



Net Financial Position



Thanks for your attention



www.saesgetters.com