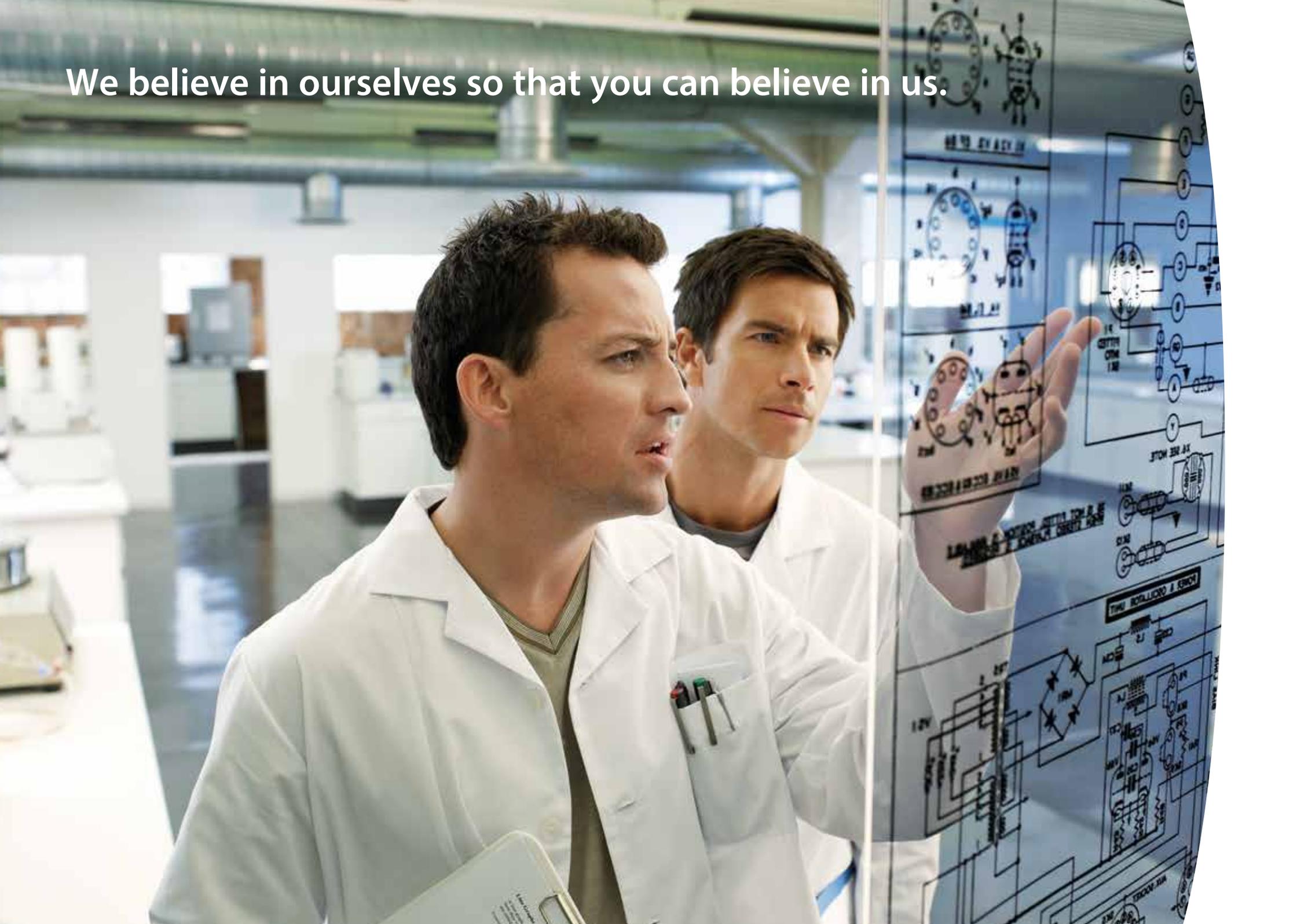




*Microelettrica Scientifica*

**A new way of envisioning the future.**

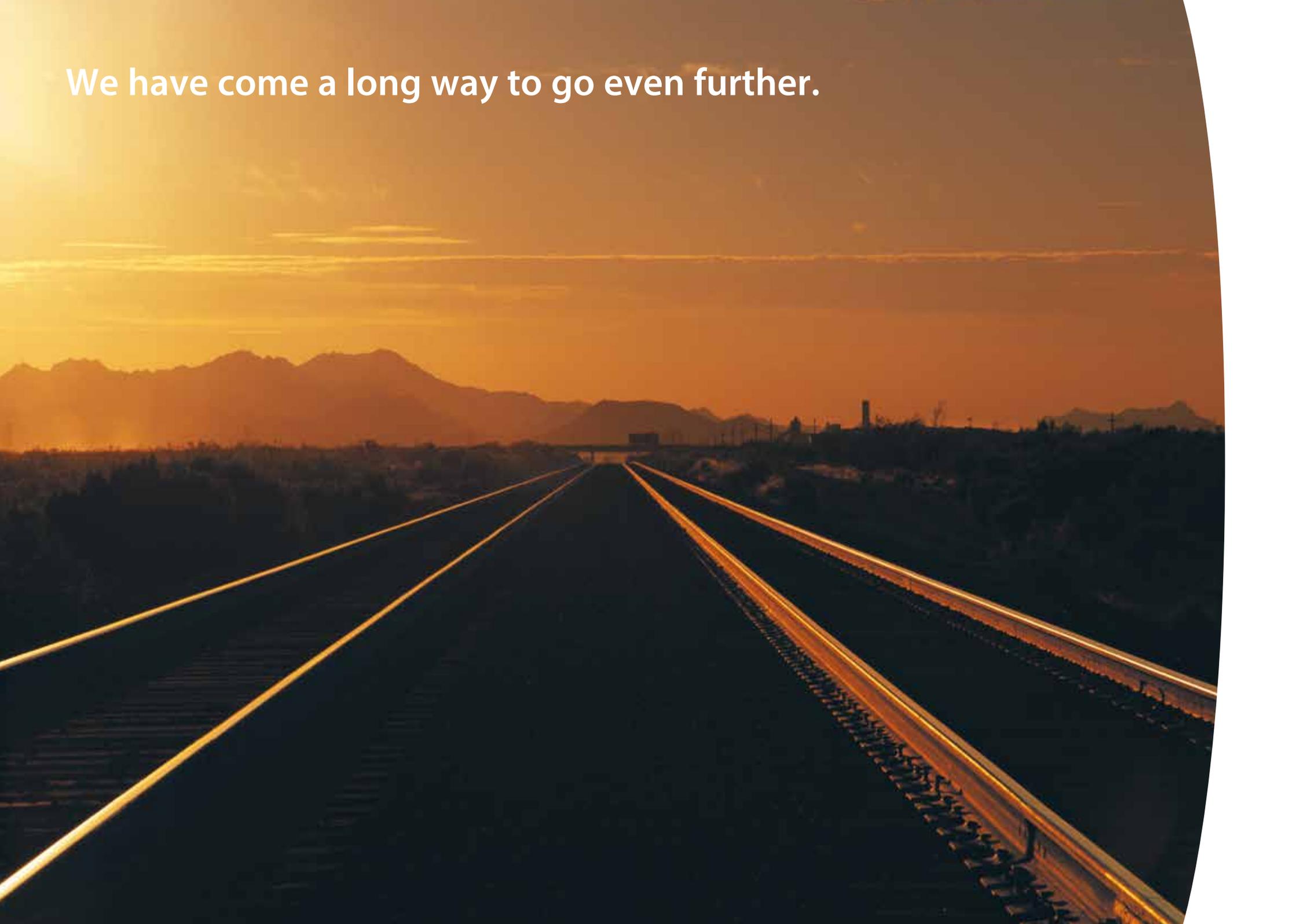
We believe in ourselves so that you can believe in us.



They say that if you want something done right, you have to do it yourself. That's why, for 60 years, we have been engineering and developing our products autonomously and together with our Customers, and we manufacture them exclusively in our plants. In this era of globalisation, it may seem strange. But it works. In fact, it works so well that we are and we continue to be a world leader in electronic and electromechanical components and systems for rail, urban mobility, energy and industrial applications.



We have come a long way to go even further.



60 years of history to create an image of seriousness, competence, quality and reliability, recognised and respected worldwide. Since our first laboratory in the heart of Milan to our current global industrial network, scenarios, objectives and perspectives have changed. But the will to stand out and establish ourselves with our own forces and resources is still as strong as the first day we set out.



#### '50s to '60s

1953 - Founded

#### '70s to '80s

1970 - Resistors added to product portfolio

1975 - First electronic protection relay

1980 - First Railway on Board contactors "LT" and strip element resistors

1985 - Move into new Rozzano premises

#### '90s to today

1990 - First major contracts on European market

1997 - Establishment of Microener

1999 - Establishment of Microdigit s.r.l. and MS Resistances

2001 - Establishment of Microelettrica USA

2002 - Establishment of new Lacchiarella facility

2003 - Establishment of Microelettrica South Africa and acquisition of Power Devices

2005 - 70% Knorr-Bremse takeover

2007 - 100% Knorr-Bremse takeover

2008 - Re-merge of Microdigit

2009 - Acquisition of Officine De Zan S.r.l. and acquisition of EMC Traction S.r.l.

2010 - Acquisition of Heine Resistor and establishment of Microelettrica do Brasil

2011 - Merger of Officine De Zan and EMC Traction into Microelettrica Scientifica S.p.A.

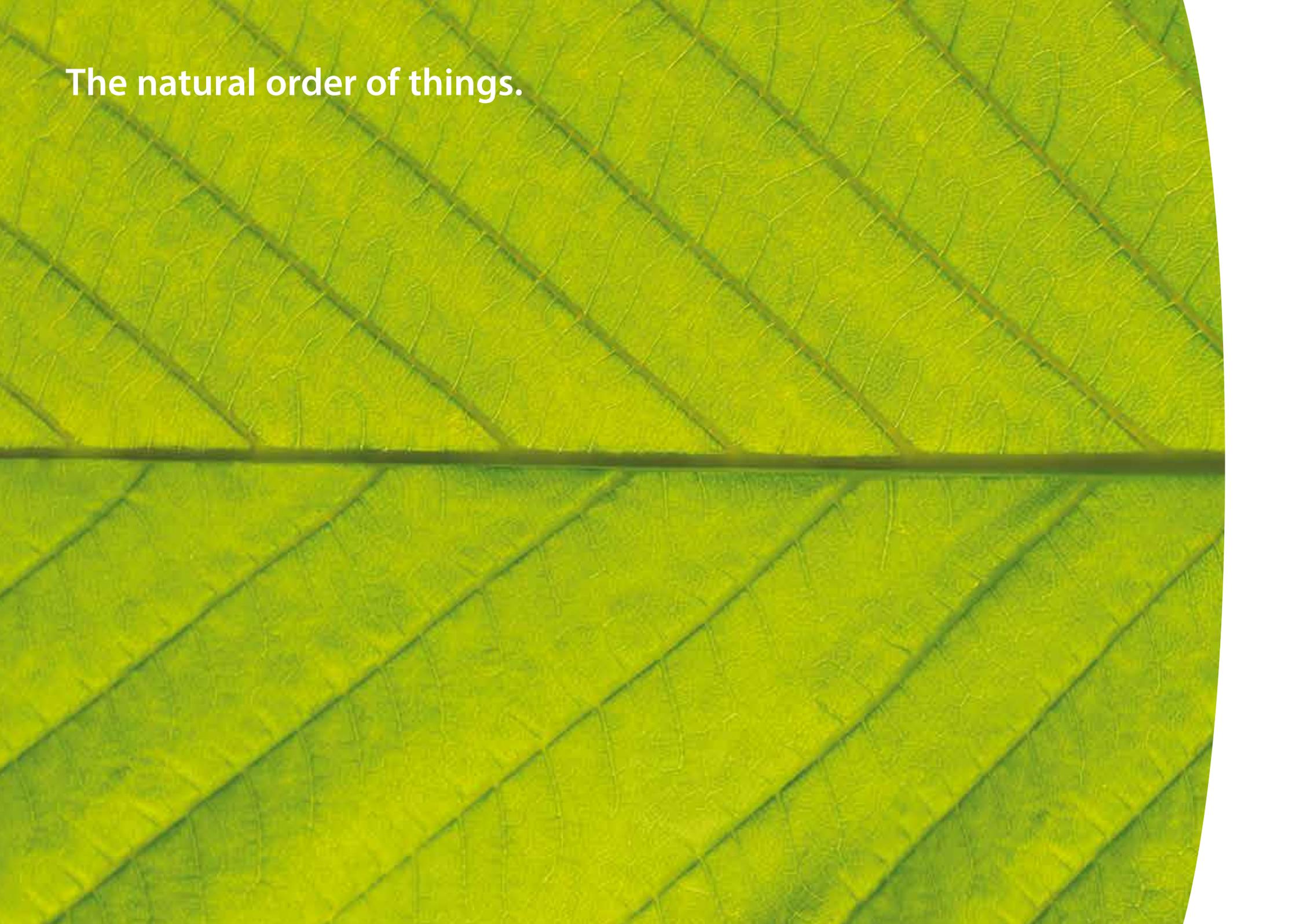
2011 - Acquisition of Comet Axial Fans S.r.l. and establishment of MSA Elektrotechnik Ltd.

2012 - Consolidation of Italian facilities in new Buccinasco Headquarter Building

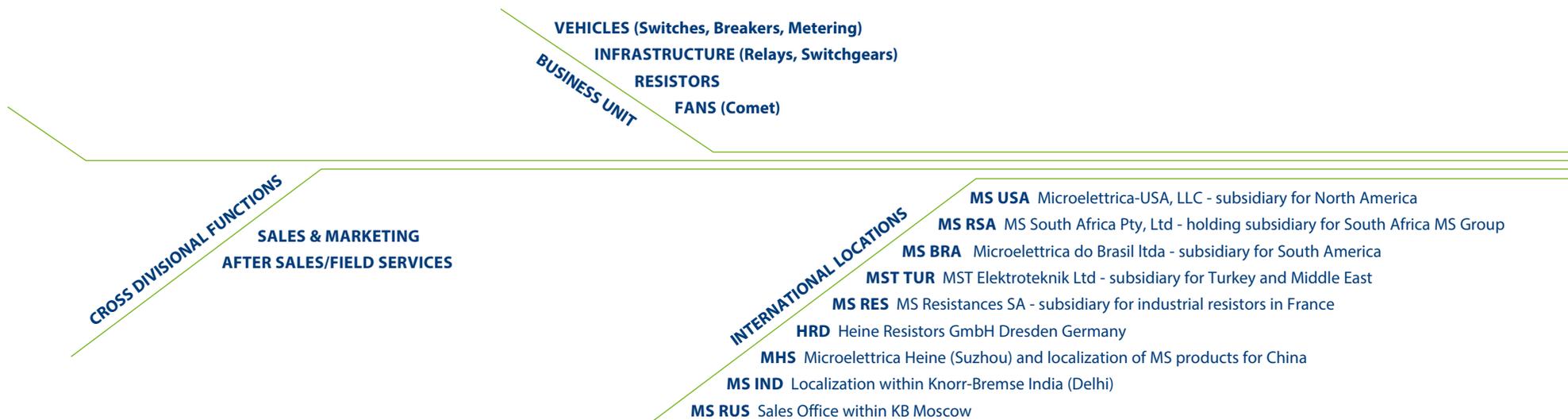
2014 - Acquisition of 60% of Casram Rail

Since 2005 Microelettrica Scientifica is a member of Knorr-Bremse Group, the German world leader in rail and commercial vehicles braking systems.

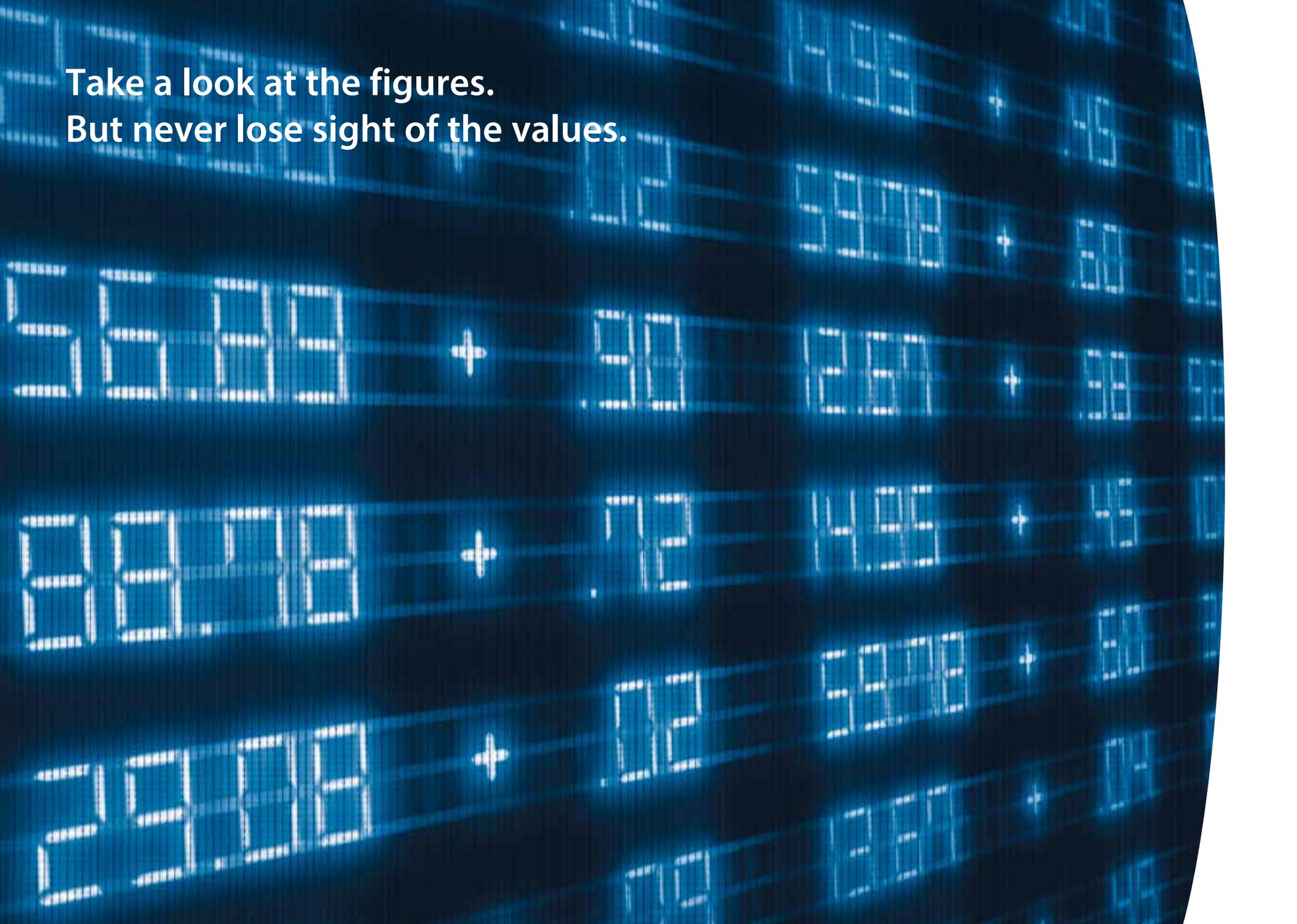
The natural order of things.



Microelettrica is structured by Business Units (design, sales, product management, engineering, validation, project management) and Cross Divisional Functions (sales, after sales, quality, sourcing, etc). While core activities are concentrated in Milan-Italy, 9 foreign subsidiaries or localizations ensure our Global Presence combined with a sales network of over 50 local partners.

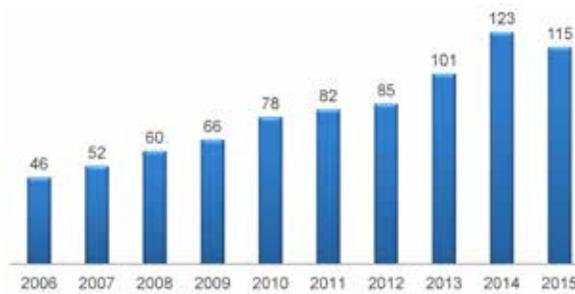


Take a look at the figures.  
But never lose sight of the values.

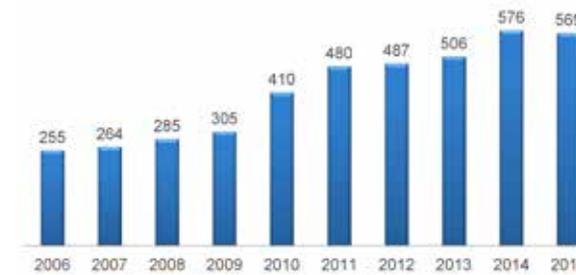


Our steadily increasing results reflect our passion for quality and work, the continuous attention paid to the needs of our Customers and the technological excellence of an organisation that is and will continue to be a leader.

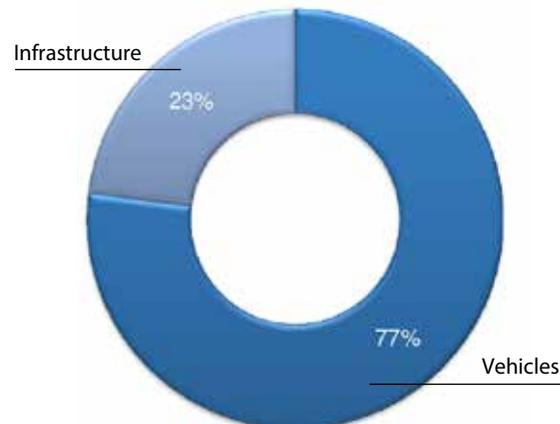
**Consolidates sales (Euro Mill.)**



**Total Headcount**

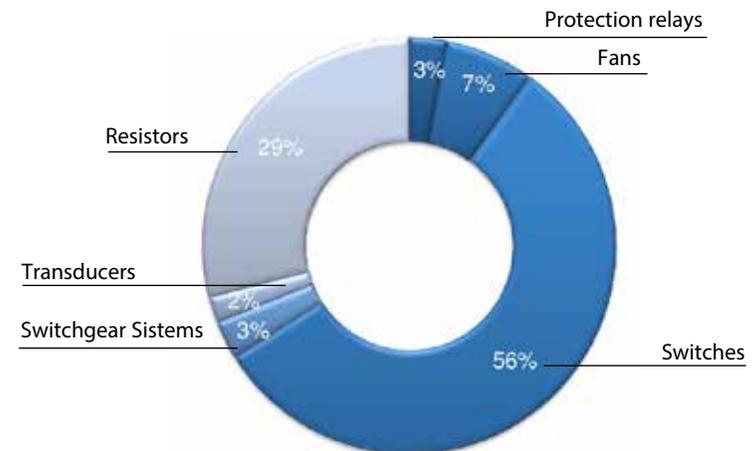


**Markets sales distribution 2015**



Sales by market

**Product sales 2015**



Sales by products



Where everyone else sees a limit,  
we see an opportunity.



Not even the most demanding, innovative and complex electrical applications can put us off. We consider them a challenge. We study them with enthusiasm. We fulfil them accurately.



### **Vehicles**

Contactors, disconnectors, DC High Speed Circuit Breakers, power resistors, blowers, high voltage transducers for metering applications, Integrated Functional Units. Highly customized components and systems for all classes of electric vehicles (Tramways and LRVs, Metros and EMUs, Locos, High Speed Trains, etc). 30 years of experience and global references in traction and auxiliary supplies for rail-vehicle applications. Customized integration in multifunctional units.



### **DC Substations**

Complete DC Traction Power systems including project management from MV to DC traction. We offer 30 years of experience with all components and systems for DC traction including metal clad switchgear of rectifier, incoming, feeder, disconnector, negative and custom cubicles according to EN 50122. In addition to TPS solutions we are able to offer system integration of our power and protection products with SCADA and data transmission systems for remote control. Our TPS offer is rounded off with the possibility of performing a Power Flow Network Study which calculates the power rating of substations, line voltage drops and the system's short circuit currents.



### **Energy & Industry**

High Voltage resistors, contactors and protection relays for T&D and solar/renewables applications.

Contactors, disconnectors, DC High Speed Circuit Breakers, power resistors, protection relays and fans for industrial applications such as metals, petrochemicals and others.

50 years of experience from the single components to highly engineered systems solutions for the most demanding Customer requirements.

# Reliability and customization: an endless source of savings.

Designed and manufactured to maximise reliability and durability, Microelettrica Scientifica products are the first choice of those who demand exceptional performance in a standard product customized to project specific requirements.

## Contactors

---

5 highly customizable product lines for vehicle and stationary applications. Up to 4000V DC or AC, from 40 to 6000A per pole. Normally open, normally closed, changeover poles in single and multipole configurations.



## Disconnectors

---

2 flexible/modular product lines for vehicle and stationary applications. Up to 4000V DC or AC, from 800 to 6000A per pole. Normally open, normally closed, changeover poles in single and multipole configurations.



## DC High Speed Circuit Breakers

---

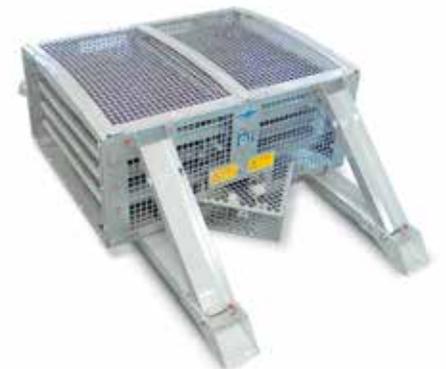
6 product families for vehicle and stationary applications, up to 4000V. Thermal current rating from 2000 to 10000A, dual voltage arc chutes available. Optional metal-enclosure / mono- and bidirectional trip setting available.



## Resistors

---

8 application lines for vehicle and stationary use. Stationary applications (Neutral Grounding, Filter, Load Bank, etc) mostly standardized. Vehicle applications (Braking, Control) are custom designed for each vehicle.



### Protection Relays

5 product platforms for stationary applications, with infinite customization possibilities. Quick application configuration and relay customization service with in-house firmwaring. Control software for relay communication.



### Metering

4 product lines for vehicle application. High voltage metering and energy measurement of all DC and AC catenaries or 3<sup>rd</sup> rail supply. DC Voltage transducers for Rail DC Substations use.



### Fans

Axial fans for vehicle (direct drive) and Industry (direct drive or belt/gear drive) applications. Axial rotors for Industry use. Centrifugal fans for vehicle applications. ATEX fans and Custom designs for Industry use. Silencers and accessories for Industry and vehicle applications.



### Communication

4 customizable product lines for vehicle application. Data handling System (DHS), TCMS for modernization application, digital speed indicators and badge reader for access control.



An industrial network ready to meet new needs.



**Microelettrica USA**

300 International Drive North  
Suite 2  
Mount Olive, NJ 07828 - USA  
Tel.: +1 973 5980806  
e-mail: msusa@microelettrica.com

**MS Resistances**

Zone Industrielle Du Coin  
Rue De Cret de la Perdrix  
42400 St. Chamond - France  
Tel.: +33 477 293980  
e-mail: sales@msresistances.com

**Heine Resistors GmbH**

Otto-Mohr-Str. 5  
01237 Dresden - Germany  
Tel.: +49 351 3192-0  
e-mail: info@heine-resistors.com

**Microelettrica Scientifica S.p.A.**

Buccinasco - Headquarters  
Via Lucania, 2  
20090 Buccinasco (MI) - Italy  
Tel.: +39 02 575731  
e-mail: info@microelettrica.com

**Comet**

Via Lucania, 2  
20090 Buccinasco (MI) - Italy  
Tel.: + 39 02 9679 0143  
e-mail: info@cometfans.it

**Casram**

Via Europa, 4  
22070 Cirimido (CO) - Italy  
Tel.: +39 031 935757  
e-mail: info@casram.it

**Microelettrica Heine (Suzhou) Co. Ltd.**

No. 9 Wuxi Road, Economy Dev.  
Area Banqiao - 215400 Taicang  
City, Jiangsu Province, China  
Tel.: +86 512 5344 8018  
e-mail: info@heine-resistors.com.cn

**Microelettrica USA****MS Resistances France****Heine Resistors Germany****Microelettrica Scientifica Italy****Comet Fans Italy****Casram Rail Italy****MST Elektrotechnik Turkey****MS Sales Office within KB Moscow Russia****Microelettrica do Brasil****Microelettrica Scientifica South Africa****MS localization within Knorr-Bremse India****Microelettrica Heine (Suzhou) China****MST Elektrotechnik San.Tic.Ltd.Sti.**

Bayraktar Blv, Beyit Sk, No:7  
Serifali, 34775 Istanbul - Turkey  
Phone: +90 216 3145015  
e-mail: mst@microelettrica.com

**KB Moscow**

Knorr-Bremse SFS GmbH  
2nd Kazachy Pereulok Dom 4,  
Strojenye No. 1  
119180 Moscow - Russia  
Tel.: +7 495 739 01 14  
e-mail: ms.russia@microelettrica.com

**Microelettrica do Brasil Ltda**

Avenida Gupê 10.767, Galpão 4,  
CEP 06422-120  
Jardim Belval - Barueri - São Paulo -  
Brasil  
Tel.: +55 11 4191 8417  
e-mail: msbr@microelettrica.com

**Microelettrica Scientifica (PTY) Ltd.**

100 Yacht Street  
Laser Park, Honeydew, Johannesburg  
Republic of South Africa  
Phone: +27 11 794 3330  
email: mssa@microelettrica.com

**Knorr-Bremse India Private Ltd.****MS Sales Office**

14/6 Mathura Road  
Faridabad - 121003 Haryana - India  
Tel.: +91 129 2276409  
Fax +91 129 2275935  
e-mail: ms.india@microelettrica.com



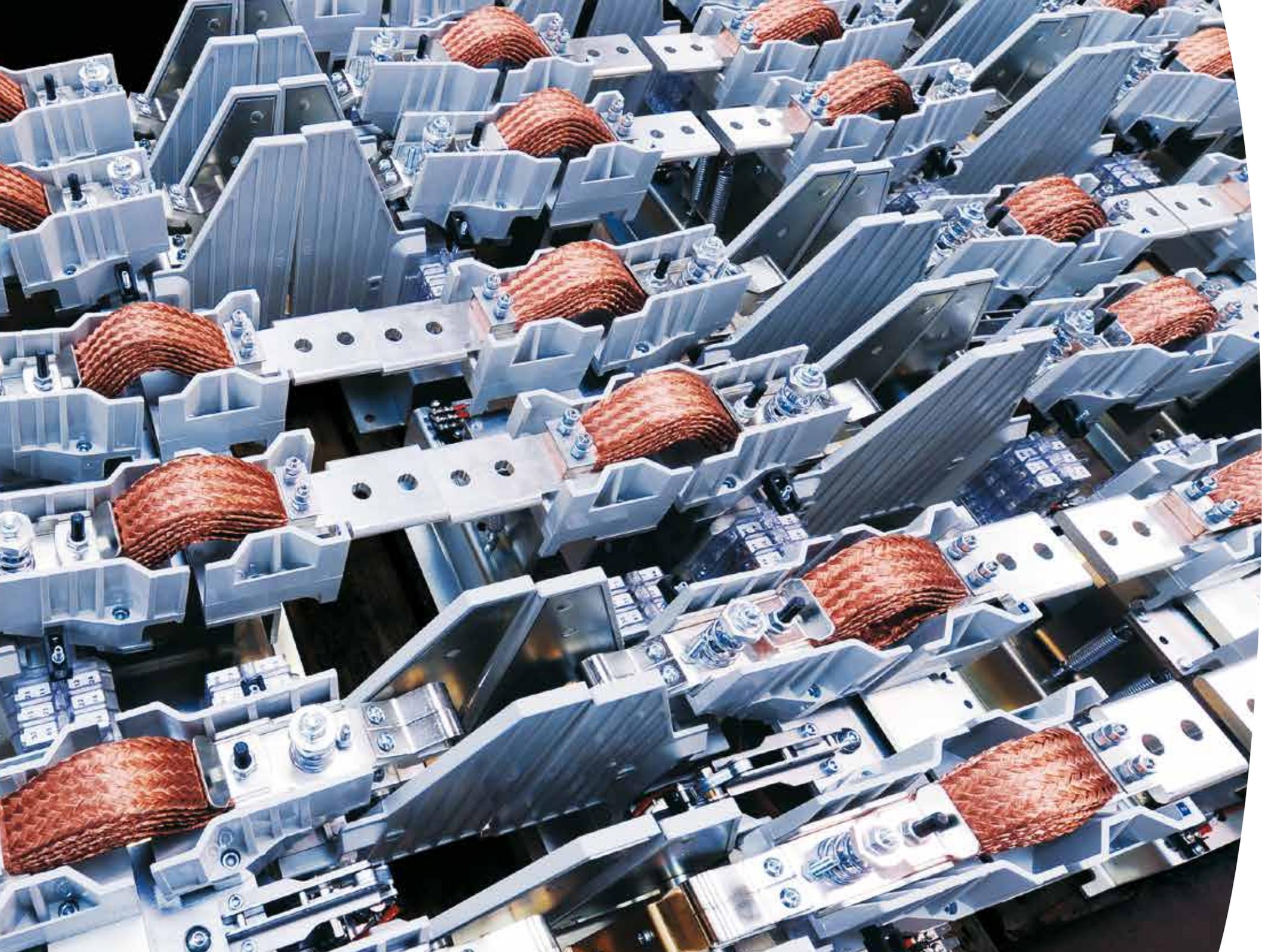
## Quality is a state of mind. And we never forget it.

At times, the word "quality" can seem empty and lacking in meaning. But when it comes down to hard facts, Quality is the only thing that counts. Client satisfaction is guaranteed by our ISO 9001:2008 Quality System certification. Our Buccinasco plants is IRIS (Rev. 2) certified.



## In order to maintain credibility, you must have a clean conscience.

The Environmental Management System with ISO 14001: 2004 certification and the Environmental Policy regulations are the foundation of our commitment to guarantee safety in the workplace and minimize the external impact of our industrial activities.



## SALES NETWORK

# Your specialists in electronic and electromechanical components and systems.

The Microelettrica Scientifica sales network serves the entire world.

To find and contact our local partner closest to you, please visit [www.microelettrica.com/en/salesmarketing/salesnetwork.jsp](http://www.microelettrica.com/en/salesmarketing/salesnetwork.jsp)



## AFTER SALES SERVICES

# Always loyal to those who have placed their trust in us.

Microelettrica Scientifica provides a wide range of after sales services to ensure the reliability and endurance of its products throughout the operational lifetime.

- Parts List and Service Manuals
- Spare Parts Offer
- Field Service, scheduled maintenance, repair service and periodic checks
- Customized solutions: Integrated Functional Units and customized contactors and disconnectors



Microelettrica Scientifica S.p.A. - 20090 Buccinasco (MI) - Via Lucania 2 - Italy  
Tel.: +39 02 575731 - Fax +39 02 57510940 - E-mail: info@microelettrica.com

[microelettrica.com](http://microelettrica.com)

