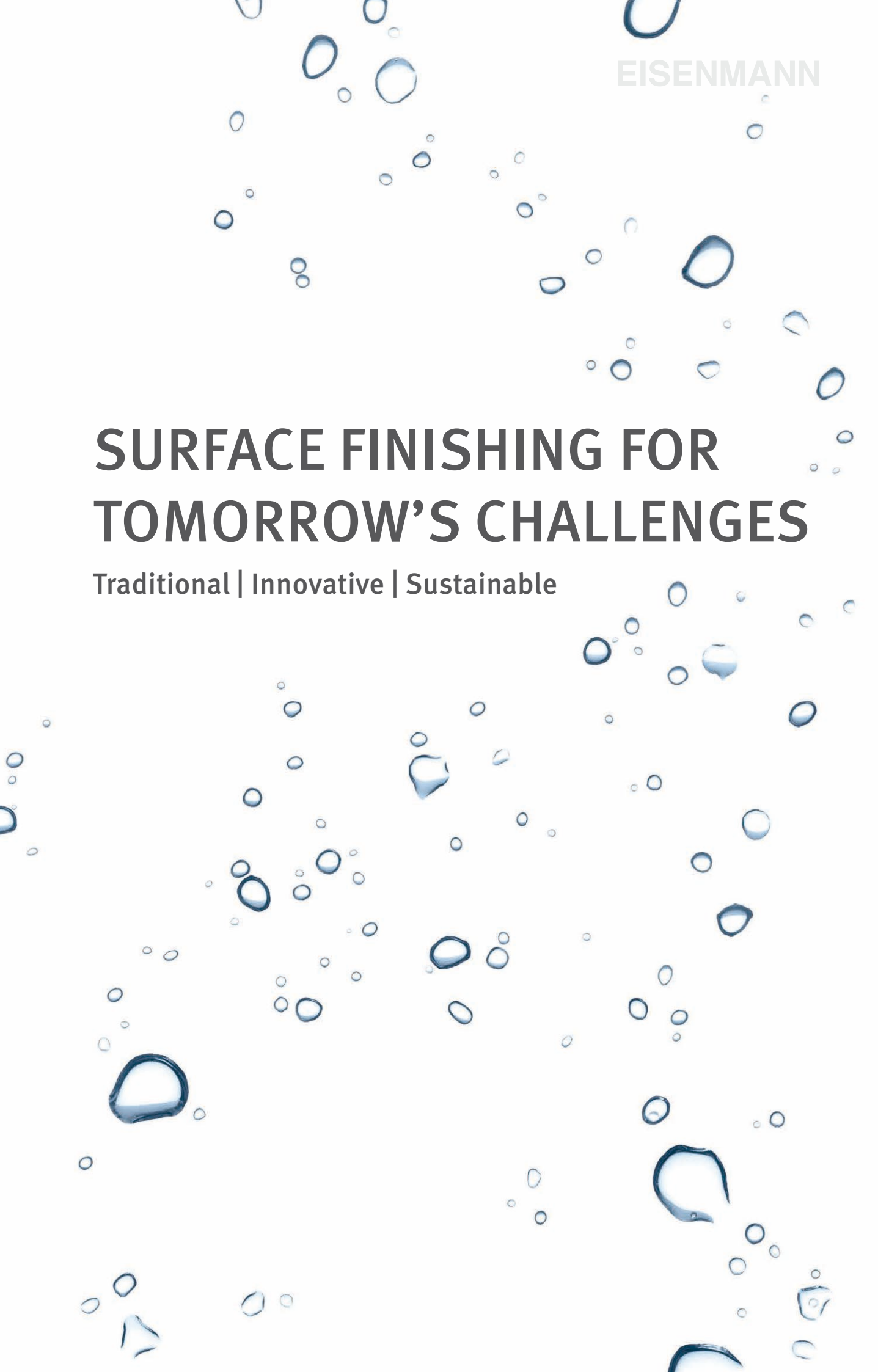
EISENMANN

SURFACE FINISHING FOR TOMORROW'S CHALLENGES

Traditional | Innovative | Sustainable



Treat your surfaces to the best.

Milestones in surface finishing

1960 First (metal) surface finishing plant, *1979* First painting line for plastic bumpers, *1988* Completion of 100th painting line for bumpers and car attachment parts, *2013* Launch of the new E-Cube overspray removal system.

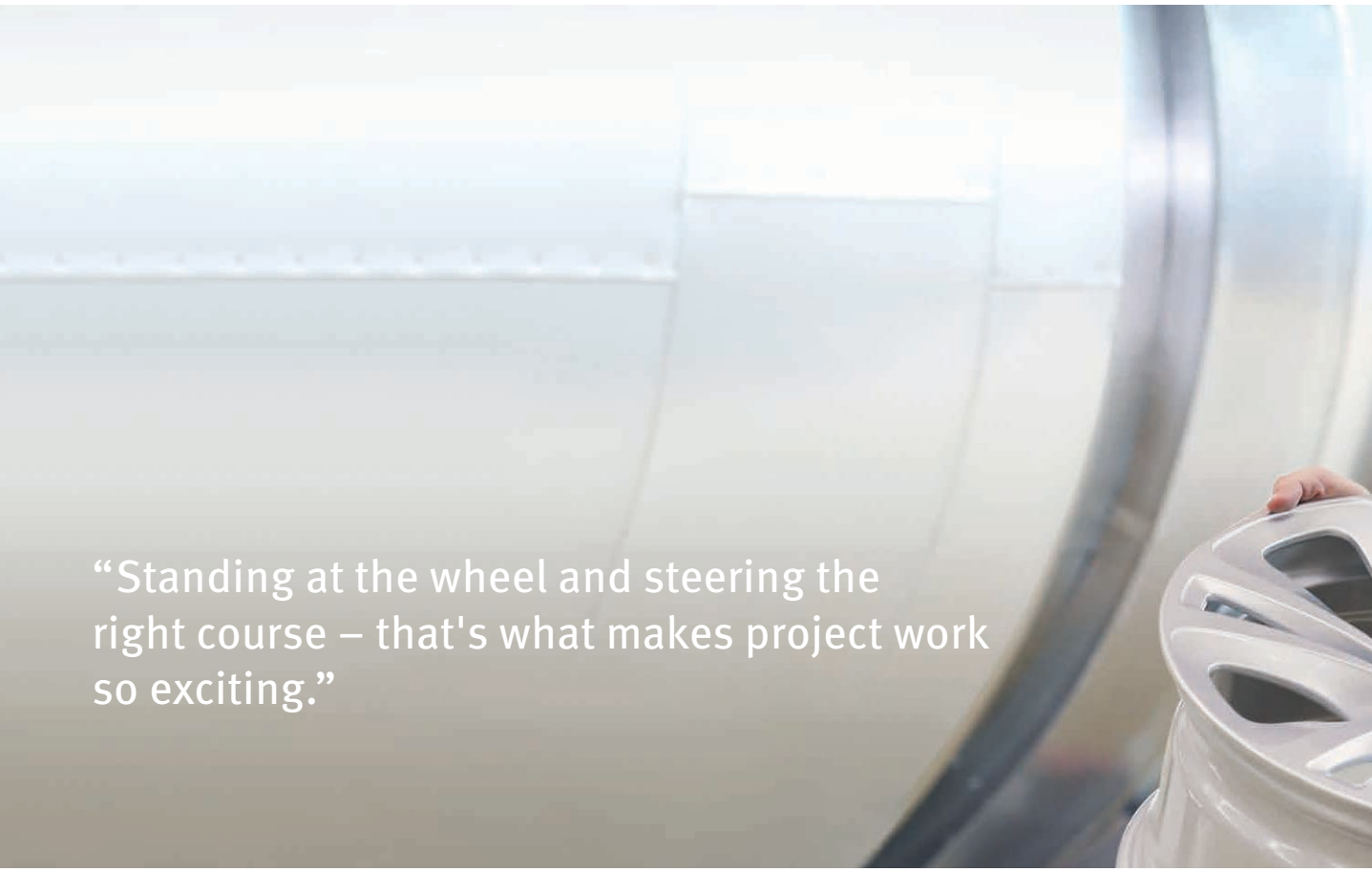
Dr. Gernot Stellberger,
Senior Vice President, General Finishing.

"We live in an age of global markets and fast-changing economic parameters. Today's businesses are locked in a constant battle to stay competitive – so the manufacturing concepts and facilities of tomorrow will need to overcome a growing number of challenges. Against this background, we are committed to supporting you by developing paint shop systems that are environmentally friendly and viable in the long term. We work with customers across a wide range of industries – including automotive component suppliers, agricultural and commercial-vehicle makers, and the manufacturing sector generally. And as a global provider of one-stop solutions and a leader in innovation, we tailor our high-quality, state-of-the-art concepts to your specific needs. Together, we have come a long way over the last 60 years. And we will continue this shared journey in the future. As a leading player in surface finishing we will do everything we can to play a key part in your future success."

EISENMANN LOCATIONS

1951 Eisenmann founded in Stuttgart. Current workforce of around *3,800* at more than *17* locations worldwide, with annual sales of *640* million euros (2012) and total net revenues of *789* million euros according to the German commercial code (HGB).

What motivates us.



AN INTERVIEW WITH MAXIMILIAN HOYER

What is it like to work for Eisenmann?
This family-owned business offers its employees a wealth of opportunities, thanks to its flat organizational structure and global operations. You are given responsibilities at an early stage, and decisions are made very quickly.

Cross-border and cross-cultural collaboration is a particularly exciting aspect. We work with our international colleagues to support customers all over the world. Indonesia, Brazil, Siberia – you name it, an Eisenmann employee has been there.

What makes Eisenmann systems so special?
Every system is tailored to the specific needs of the customer – so each one is unique. Personally speaking, I am fascinated by the complex interrelationship between the production process and the corresponding conveyor systems. Ultimately, all components must run together like clockwork. And the final product is the result of our project work – there are probably very few cars on European roads today that were not manufactured using Eisenmann technology at some stage.

What illustrates the spirit of innovation that has helped this family-owned business based in south-west Germany become a global player?
Every contract we win is proof of our ability to innovate because each system demands a certain amount of development work – either in terms of the process or the conveyor technology. At Eisenmann, we gear our solutions to each customer’s individual imperatives. This means we need to innovate on a daily basis, so we can implement these innovations into our projects.

For example, we embraced eco-friendly plant engineering at a very early stage. This led to the creation of our Environmental Technology business unit. We have been successful in this field for over fifty years – and

Maximilian Hoyer, Project Manager, Surface Finishing.

we remain at the cutting edge to this day. Our latest innovation is the E-Cube – an energy-efficient overspray removal system that conserves resources.

At Eisenmann, we have the knowledge and expertise to create the innovations our customers expect, and we are able to respond to emerging challenges. This combination has enabled us to make the leap from a mid-sized family-owned company to a major global player.

As a project manager, what is it like to deal with highly complex international assignments?
Each project has its own unique characteristics. The technical issues sometimes prove the most challenging, but at other times it is major innovation; sometimes inter-cultural communication is the biggest obstacle. This variety makes both project planning and execution extremely exciting.

What are the particular challenges that motivate you?
Personally, I find it stimulating to stand at the helm of a project and steer the right course. I keep the goals of the project in mind at all times: the deployment of efficient technology, and keeping on-time and on-budget. It's a wonderful feeling of satisfaction to complete a project successfully.

Our solutions and services at a glance.

PRETREATMENT
DIP PRETREATMENT
SPRAY PRETREATMENT
DRY ICE CLEANING
FLAME TREATMENT
POWER WASH
FLOODING

PAINTING | COATING
WET PAINTING
POWDER COATING
DIP COATING
FLOW COATING
ELECTROCOATING
APPLICATION TECHNOLOGY
PAINT SUPPLY EQUIPMENT

DRYING | CURING
CONVECTION
INFRARED
UV CURING
INDUCTION

Conveyors | Inverted power & free.

Wet painting.

CONVEYORS | MATERIAL HANDLING

Integration of material flows between production and other process steps
Our core competencies include the implementation of high-performance, end-to-end logistics solutions for our customers. This entails leveraging all available material-handling options and seamlessly linking the production facility or the raw-material receiving department with final assembly or the packaging line.

WET PAINTING

VarioCharger and VarioBell
VarioCharger minimizes wastage during color change-overs and delivers precise paint metering. It comprises two parallel metering cylinders operated alternately. These control the cylinder filling, painting and rinsing process steps. While one fills and rinses, the other supplies the VarioBell with paint. The VarioBell's spray pattern can be adjusted to the precise shape required for each workpiece. This highly compact system combines high application efficiency with minimal paint wastage and high flow rates.

CONTROL ENGINEERING

PROCESS CONTROL SYSTEMS
CONTROL CABINETS
HARDWARE AND SOFTWARE

ENVIRONMENTAL TECHNOLOGY

EXHAUST AIR
WASTE WATER

LOGISTICS SYSTEMS

CIRCULAR CONVEYORS
POWER & FREE CONVEYORS
SPINDLE CONVEYORS
SKID CONVEYORS
AUTOMATIC FEED UNITS
MOVABLE HOIST SYSTEMS
ELECTRIFIED MONORAIL SYSTEMS
HANDLING SYSTEMS

Material handling | Wheel transfer units.

A SYSTEM INTEGRATOR

Eisenmann leverages in-depth process skills to plan and implement sophisticated one-stop solutions within the scope of national and international projects. We design and make a large proportion of components ourselves, integrating them with a variety of technologies from external suppliers. Thanks to this ideal combination, we deliver results of the highest calibre.

Our mission: sustainability.

Up to
100%**
less fresh water and chemicals

Up to
50%*
less thermal energy

Up to
30%*
less electric power

- Systematic energy accounting for industrial plants
- Energy-efficient painting and finishing processes
- Smart energy management
- Energy-efficient plant engineering
- Holistic energy analysis of the entire paint shop
- Integration of solar thermal technology into the painting process
- Cost-benefit analysis of proposed savings

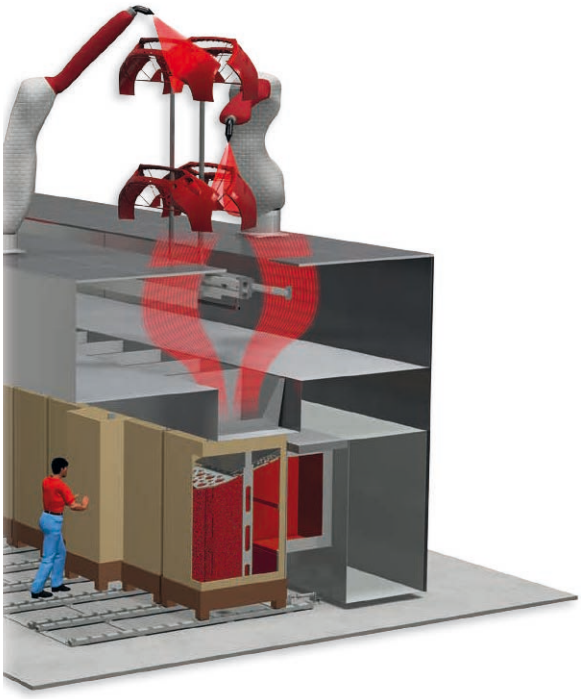
* Achievable with energy-optimized plant design.
** In spray booths using Eisenmann's E-Cube overspray removal system.

One of our portfolio highlights.

E-CUBE – SIMPLE, SMART OVERSPRAY REMOVAL

The removal of overspray is one of the most energy-intensive processes in any paint shop. Furthermore, due to their complexity, most removal systems can only be operated by specialists. The new E-Cube is quite different: it not only operates without the need for chemicals, water or other additives; it's also very easy to use.

The secret of its simplicity lies within the system's cube-shaped removal modules. These contain highly sophisticated filtration technology. The cubes are predominantly made from recycled material, and can be folded up to save space for shipping and storage.



When fully assembled, they fit on a standard euro pallet. What's more, they are simple to assemble and replace – this can be undertaken by unskilled staff. And E-Cube can easily be retrofitted to existing plants that originally employed other overspray removal systems.

The cubes are hybrid filters that typically achieve a removal rate between 0.5 and 2 milligrams per cubic meter of air. They have high capacity and a service life of one to several weeks. For example, a cube in a ten-meter long spray booth, operated in three shifts and producing 60 kilograms of overspray per hour, has a mean service life of one week. As the system does not require any chemicals, water or other additives, it produces less waste and its waste disposal and energy costs are lower than for conventional overspray removal systems.

E-Cube can be used in any wet paint scenario, for example by carmakers, automotive suppliers and by manufacturers of commercial and agricultural vehicles. Other areas of application include plastics coating and metal finishing.

Advantages at a glance

- A simple system ideal for plants of all sizes
- Can be operated and maintained by unskilled staff
- Can be retrofitted to existing plants
- Requires no chemicals, water or additives
- Low waste

Removal system	E-Cube	Venturi (circulation)	E-Scrub (electrostatic)
Features	Simple, no additives	Standard	Best separation, lowest pressure loss
Overspray capacity	+	++	++
Emissions	0.5 - 2 mg/m³	‹ 3 mg/m³	0.3 - 0.8 mg/m³
Pressure loss	Rising	Constant	Constant
Operating/maintenance	Unskilled staff	Skilled staff	Skilled staff
Capex	Lower	Standard	Higher
Opex	Lower	Standard	Lowest costs

Our overspray removal systems.

Dr. Claus Lang-Koetz, Innovation Manager.

INNOVATION IS OUR STRENGTH

What led to the E-Cube being developed?
We held several creative brainstorming sessions with experts from a number of departments and business units. We discussed how we could design a simple, entirely dry removal system for small to medium quantities of overspray. That's how the E-Cube concept was born and subsequently evolved. However, it soon became clear that E-Cube could also handle larger quantities of overspray. This led to a large-scale development project, culminating in market launch last year.

How important is innovation at Eisenmann?
Innovation is our strength. It's critical to understand exactly how the technology can benefit our customers. We can then offer them the best possible solutions for efficient, cost-effective production. For this reason, we engage in a close and ongoing dialog with our customers. What's more, we always keep a close eye on technological trends of potential benefit to production engineering. This allows us to incorporate the latest developments into new products.

Our projects.

PLASTIC COATING LINE FOR PLASTIC OMNIUM

It took just nine short months from signing the contract to completion of a fully production-ready paint shop for plastic bumpers in Puebla, Mexico. This was a remarkable success for all involved, and the result of a partnership of trust and highly professional project management. The facility coats 45 skids per hour by a wet-in-wet process using solvent-based paints. If required, the current system design can also coat components with water-based paints.

WHY EISENMANN?

- Fast, reliable implementation
- Flexible plant design

"A tight implementation schedule is always a major challenge for both contractual parties. Key to success is a partnership based on mutual trust."

Christophe Marceau, Purchasing Director.

A NEW DESIGN FOR SHOPPING CARTS

Wanzl shopping carts can be found all over the world – so you have probably used one yourself. The long-established Bavarian company manufactures both traditional metallic shopping carts and powder-coated models in various colors. But carts need to withstand a great deal of rough treatment, so powder coating alone is not enough.

The cart's surface needs to be as robust and durable as that of a car. To address this, the surface treatment plant designed and built by Eisenmann includes a high-quality pretreatment process to provide the best possible corrosion protection. At the same time, the facility – which not only processes some 500,000 carts each year, but also various shop fittings – now consumes fewer chemicals, less water and less energy.

WHY EISENMANN?

- Custom powder coating solution
- Energy-efficient plant technology

WANZL
EMBRACES COLOR...

Our expertise.

PAINTING ALUMINUM WHEELS

Aluminum wheels for automobiles offer high quality and durability – which is why they are in greater demand than ever before. As wheel manufacturers look to expand their capacity, competition is becoming increasingly fierce. Against this background, surface finishing processes must deliver both outstanding quality and cost-efficiency. So to ensure they can sustain their competitive edge long term, businesses have a critical need for high-performance treatment systems. Eisenmann has many years' experience in creating solutions tailored to customers' unique requirements.

Eisenmann's wide range of production plant and equipment has played a key part in our success. Particularly popular are our powder coating and wet paint solutions featuring customized application technology, high-quality pretreatment, waste water disposal and exhaust air purification systems. What's more, we precisely align our conveyors and material handling systems to the specific needs of our customers. And as a single-source manufacturer, we are able to provide them with integrated, end-to-end solutions.

PAINTING COMBINE HARVESTERS

Eisenmann operates worldwide, ensuring we can offer customers the best possible service wherever they are located. We maintain a presence in the most dynamic business hubs of China, India, Russia, Brazil, Mexico and the USA. As a result, we are able to address our customers' requirements quickly and with optimum solutions. These advantages have attracted the attention of farm and construction machinery manufacturers around the globe, who have equipped their factories with complete Eisenmann paint shops. Our scope of delivery includes pretreatment plants, drying ovens, large-capacity spray booths with scrubbers, specialized conveyor systems, waste water treatment plants, and thermal oxidizers with heat recovery.

www.eisenmann.com

Eisenmann Anlagenbau GmbH & Co. KG, Tübinger Str. 81, 71032 Böblingen, Germany, Phone: +49 7031 78-0, Fax: +49 7031 78-1000

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