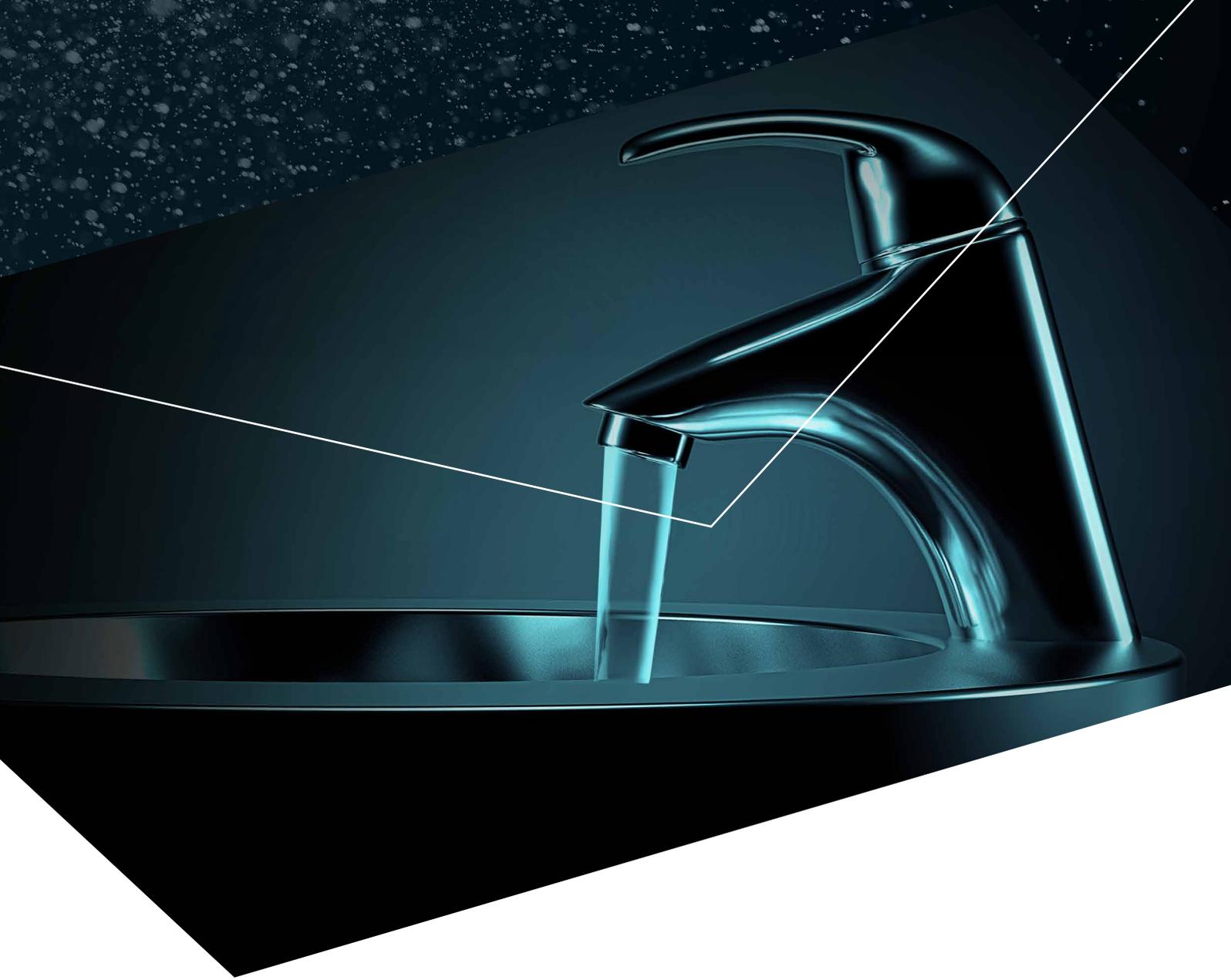


HAUZER

DECORATIVE SOLUTIONS



INDUSTRIAL PLASMA SOLUTIONS

“Hauzer has been the pioneer in vacuum plasma coatings since 1983. Creative solutions are part of our DNA. Over the years, our engineers have used their experience to develop a broad technology portfolio. We specialise in flexible, modular systems that include a wide range of deposition and etching technologies to deposit physical vapour deposition (PVD), plasma-assisted chemical vapour deposition (PACVD) and nitriding layers. These technologies form the heart of our industrial batch and inline equipment. We cooperate with our customers on a daily basis to develop tailor-made machine concepts. With IHI Bernex part of the Hauzer Group, our product portfolio also includes chemical vapour deposition (CVD) systems.”

“Our people, our experience and the partnerships with our customers are the basis of our success. We are proud of each of our 200 employees. In the future we will continue to expand our expertise and develop our technologies and material properties in line with our customers’ sustainable goals. Combining these technologies with in-depth knowledge of applications, we can build the efficient, highly productive equipment that is needed in the markets. Now and in the future, Hauzer is your partner for industrial plasma solutions.”

Dave Doerwald
CEO



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PARTNERSHIPS, YOUR RECIPE FOR SUCCESS

Collaboration is how Hauzer can help you thrive – it is how we make sure our customers are satisfied while we continue to develop our expertise. When determining the requirements for a new machine build, we combine your application knowledge with our technological expertise. We have a broad portfolio of ready-made recipes for coatings that will allow you to surpass the competition. If you seek to develop your own unique products, we will use our industrial plasma solutions in a joint development project. Your success is our triumph.

Global leader

Our global partnerships make Hauzer a strong, reliable partner. They are how we can serve as a global leader in tribological coatings for the automotive market, give our customers a competitive edge in tool coating technology and allow us to build sustainable factories for decorative coatings, such as Cromatipic®. To keep our large installed base of hundreds of machines running at the top of their capacity, we offer extensive customer support, including consumables and upgrades with new technologies.

Global presence

From our competence centres and offices in the Netherlands, Spain, China and Japan, we offer you the support necessary to be a real partner. Our engineers provide local assistance in process development, maintenance, training, trouble shooting and delivery of spare parts and consumables.

Research collaboration

Because of our investment in pioneering and our decades of technology development and equipment building, we have built close working relationships with many research departments in industrial companies and scientific institutes. This research, combined with our engineering experience, guarantees the excellence of the solutions we develop for you.

Development for future

As markets develop, opportunities for plasma technology applications and robust mass production will continue to grow. Hauzer will be your partner to develop the industrial plasma solutions for the future.



INCREASING OPPORTUNITIES FOR DECORATIVE SOLUTIONS

The market for decorative coatings is growing fast, as design is becoming a more important consideration in more and more products. From the perspective of technology, more coating colours are becoming available, for more different substrates and with a larger variety of surface characteristics.

Scratch-resistant decorative coatings have long been a mainstay in building décor and household appliances. Now, businesses in these industries are increasingly distinguishing themselves by applying colour variety and moving with trends. Designers, producers of luxury products and the automotive industry have also discovered decorative PVD coatings.

Whether your main goal is to create your own design language, to increase the perceived value of your products, or to offer a traditional look and feel on lightweight substrates, Hauzer can offer the right coating solution and machine configuration for your needs.

Main decorative markets

- Sanitary and door hardware
- Household appliances
- Luxury items
- Eyewear
- Consumer electronics
- Automotive

Why Hauzer coating solutions

With our decades of experience in developing recipes and equipment for decorative coatings, Hauzer can offer you:

- Coating equipment for the most consistent colours per batch, even over complex 3D shapes. This saves time in finding the components that match and results in less scrap during manufacturing.
- Global customer support. Hauzer machines have been used in North and South America, Europe, Asia and Australia to apply decorative coatings.
- Support for your business. As part of the way we work with our customers, we share previously developed coating recipes and offer sampling services free of charge.
- Continuous development. We are machine builders, but also much more than that. We are continuously investing in new recipes for new, trend-building colours and properties.
- A toxin-free, sustainable alternative to chrome electroplating. Our Cromatic coating equipment and coating service is compliant with all regulations including the EU regulations for 2024.

DECORATIVE MARKETS AND APPLICATIONS

Decorative PVD coatings are of interest in many sectors, all with slightly different needs. Whatever your considerations in terms of choosing decorative coatings, aesthetic value is probably the most important one – the look and feel of the final product. PVD coatings can, for instance, create a metal touch on plastic components, which immediately increases the perceived value of the product.

Hauzer equipment and processes are designed to apply high-quality finishes on a wide range of substrate materials, such as stainless steel, titanium and electroplated brass, die cast zinc and plastic. The reproducibility of the coating quality is excellent. Decorative PVD coatings also add value with their increased hardness, scratch and wear resistance, and a finish that does not change over time.

Sanitary and door hardware

As the market for building décor is increasingly driven by design and fashion, manufacturers and coating service providers need to be able to provide a wide range of colours to meet the expectations of their customers.

- Taps, faucets, shower head and other sanitary hardware in beautiful colours and robust finishes
- Door handles, hinges and fittings that are scratch resistant and in a timeless or trendy style – with optional antibacterial properties

Luxury items

The luxury market is one of the most fashion-sensitive markets for decorative coatings. Watches, pens, jewellery – designers and influencers can affect sales trends to an extent previously unheard of. That means that coating providers need to be ready to pivot between trendy coatings at a moment's notice.

- Personal luxury items with premium quality and a truly personal feel thanks to the large variety of on-trend colours
- Unique coating recipes can be developed to set a brand or product line apart in the market

Eyewear

Sunglasses and prescription spectacles have a special place in the decorative coating sector. On the one hand, these items are highly susceptible to fashion trends. On the other hand, users – especially of high-end, brand spectacles – expect them to stand up to at least several years of intensive daily use. An excellent case for hard, wear-resistant PVD coatings.

- Spectacles that still look like new after years of daily wear
- On-trend coating colours that lend a premium quality to spectacle frames

Sanitary and door hardware

The market for household appliances is growing, due to the expanding middle class in emerging economies. In countries with mature markets, suppliers can gain market share with distinguishing new designs and finishes as well as smart features. The trends in kitchen appliances, for instance, mirror those in sanitary and door hardware: a wide range of colours, including the popular matte black and rose gold.

- Washing machines, dryers and kitchen appliances that match the styling of the bathroom or kitchen
- A wider range of style options, allowing customers to distinguish themselves through appliances that match their style

Consumer electronics

Consumer electronics such as phones, earbuds and smartwatches tend to be made of fragile, lightweight materials. Still, they are expected to stand up against hard use, as they are constantly handled or kept in pockets and purses. A PVD coating not only gives consumer electronics a premium look and feel, but also makes them more robust.

- High-quality appearance that allows companies to command a better price
- Unique coating recipes can be developed to set a brand or product line apart in the market

Automotive

In the automotive sector, two influences are currently at work to make PVD a very promising coating technology. First, the increasingly strict environmental regulations for vehicles are driving a move toward more lightweight materials. Thin-film PVD coatings work very well with this new variety of materials. Second, different environmental regulations are phasing out the use of chrome electroplating. Automobile designers who still want the classic chrome finish look and cool metal touch can now turn to PVD for an environmentally friendly alternative.

- Cool-touch satin or polished chrome finish for classic design style
- Novel translucent chrome coatings for backlit applications

DECORATIVE COATING PROPERTIES

We deliver solutions that match your goals, now and in the future. The right, state-of-the-art technologies to give you the coating properties you need. All Hauzer decorative coatings are primarily chosen for their colourful finish – steel, nickel, gold, bronze, rose gold, anthracite and black, with the best reproducibility and uniformity in the market. But that is not all our coating solutions have to offer.

Durability

Increasing the durability of objects is where PVD really shines. Hauzer's decorative coatings have always been known for their scratch-resistant properties. In addition, the colour of the coating stays the same for years on end.

The result: sanitary hardware, luxury items and consumer electronics with a decorative Hauzer coating look like new much longer than their uncoated versions. In fact, Hauzer customers have felt confident providing limited lifetime warranty on their sanitary hardware – a warranty that holds as long as the original buyers of the hardware still live in that house.

More recently, we have also been working on adapting tribological coatings, designed to protect surfaces in engines and industrial machinery, for the decorative market. This small but growing line-up of decorative coatings easily equals the scratch resistance of our larger portfolio of decorative coatings.

Antibacterial properties

Silver ions have long been known to have an antibacterial effect. Now, Hauzer has developed a coating architecture that includes these silver ions, with a proven kill rate of 100% for common disease-related bacteria *E.coli* and *S.aureus*. The antibacterial properties are available with only a small machine upgrade,

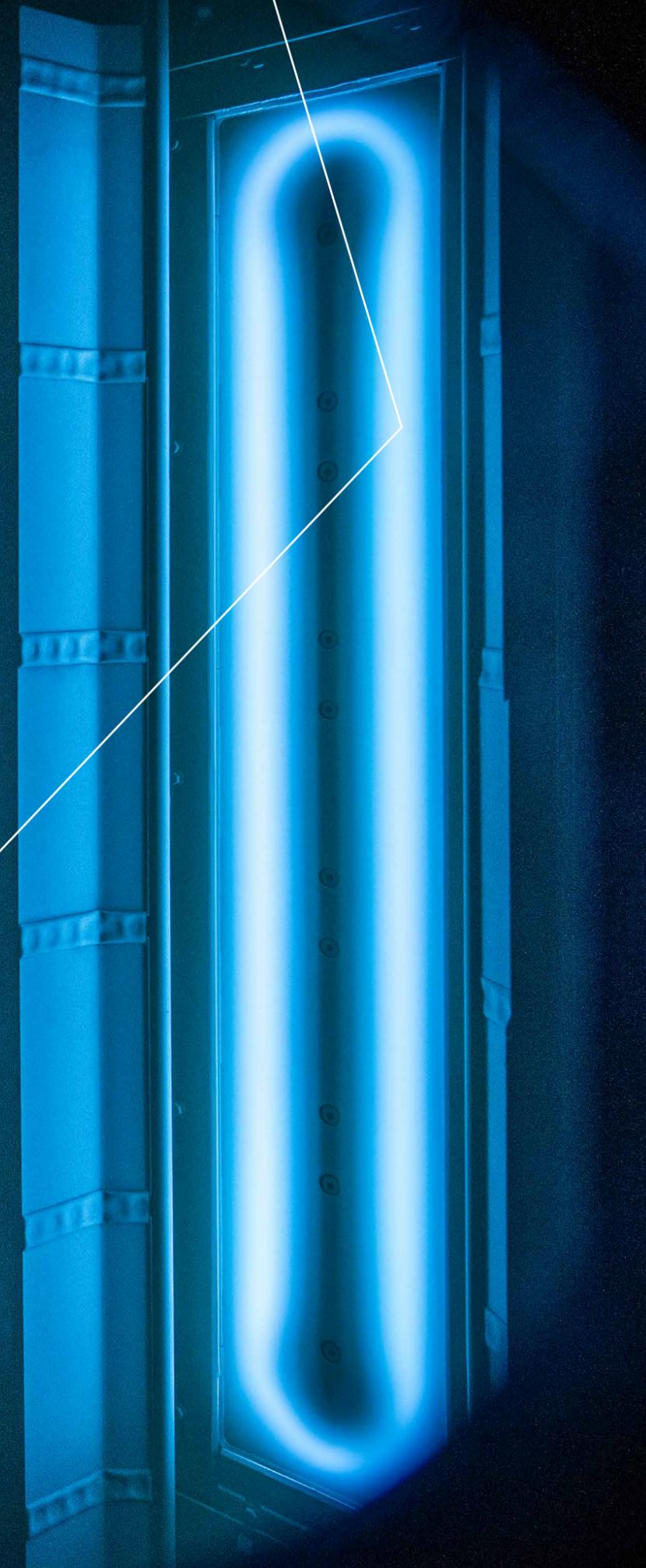
and can be added to many of our standard coating recipes with minor adjustments. Offering those coatings on door handles and sanitary hardware for hospital buildings, airports, schools and other crowded environments can help your products stand out in the market. The consumer market, too, is increasingly interested in antibacterial properties, whether for their home décor or high-touch personal objects such as eyewear and phone cases.

Environmentally friendly alternative to chrome electroplating

Cromatipic® sets the new standard in chrome finishing, adding stylish chrome coatings on a variety of plastic materials.

The Cromatipic® approach is drawn from traditional paint and PVD technologies, which makes it completely different from electroplating on plastics, with many advantages. The most important of these: Cromatipic® technology is the only coating technology that is already compliant with the REACH regulations, because it completely avoids the use of toxic hexavalent chrome.

Because it is durable, nickel-free and corrosion-free, the Cromatipic® decorative chrome coating can be used on a wide variety of items, from washing machine parts to consumer electronics and automotive components.



CONFIGURING YOUR HAUZER MACHINE

Hauzer machines are renowned for their flexibility, modularity and broad range of available technologies, so you can configure them to match your exact business needs. We offer a broad range of coating technologies and are experienced in guiding customers with many different business goals.

Colour range and finishes

The colour of a PVD coating is determined by its composition and structure. The amount and type of evaporated metal and the flow and nature of the process gases will determine the coating composition. A common configuration of Hauzer machines for decorative coatings is the combination of arc evaporation, sputtering and PACVD. This increases the coating structure freedom, allowing for the widest colour range in the market.

Decorative coatings are typically <math><0.5</math> micrometre in thickness, so they do not change the surface texture of the product. Being able to deliver products with a polished, brushed and satin finish, thanks to the structure of the underlying substrate, adds even more design freedom.

- Gold
- Rose gold
- Bronze
- Copper
- Grey
- Anthracite
- Black
- Rainbow

Flexibility or productivity

Each Hauzer machine has a number of cathode positions. Depending on your coating needs, we can engineer them to your specifications: either equipping it with many different technologies or multiples of the same technology.

Equipping the cathode positions with many different technologies increases the range of different colours and coating types the machine may be used for in that setup. For instance, the new Hauzer hard black coating was originally a tribological coating, which requires sputtering and PACVD technology. And our new antibacterial coatings require the addition of silver target.

Equipping the machine with two or three of the same cathodes, on the other hand, reduces maintenance by increasing the time needed between cathode replacement. It may also decrease the cycle time of the coating process.

Dual or triple purpose

For coating service providers or in-house coating providers that are also interested in providing tool or tribological coatings, it is good to know that Hauzer equipment is flexible enough for dual or even triple-purpose configurations. Our engineers are happy to discuss your needs and options.

THE RIGHT EQUIPMENT FOR YOUR BUSINESS

Depending on the size and volume of the products that need to be coated, Hauzer offers batch and inline machines for the decorative sectors. Batch systems are ideal for businesses with a wider range of required recipes, while inline systems are excellent for high-throughput coating of many identical products.

Available technologies

- CARC+ Flex
- Rectangular arc
- Magnetron sputtering
- HiPIMS
- PACVD
- Microwave
- Plasma source etching
- Plasma source cleaning

HAUZER FLEXICOAT® BATCH MACHINES

Hauzer Flexicoat® batch machines combine a high degree of flexibility with a reliable production output. Multiple plasma technologies can be combined in one machine, and new technologies can always be added through upgrades.

Because of the platform's flexible design, you can adapt your machine configuration to meet future needs of the market and smoothly switch to the next trend colour. Hauzer engineers are always available to discuss your market, applications and requirements with you, so we can give you the best system configuration for your future success.

Advantages of the Hauzer Flexicoat® batch systems:

-  COMPETITIVE COST OF OWNERSHIP
-  CUSTOM PRODUCT FIXTURES AND TABLES
-  MULTIPLE PLASMA TECHNOLOGIES IN ONE MACHINE
-  QUICK TROUBLESHOOTING

HAUZER INLINE MACHINES

With a Hauzer inline machine, you can coat millions of components every day. They are built for 24/7 mass production of three-dimensional components and can easily be integrated in highly automated factories. Hauzer inline systems also have a modular design, so the equipment can be expanded or upgraded whenever more capacity or flexibility is required.

Advantages of the Hauzer Flexicoat® inline systems:

-  LOW COST OF OWNERSHIP
-  INTEGRATION IN HIGHLY AUTOMATED FACTORY
-  HIGH UPTIME, HIGH YIELD
-  TRACEABILITY OF PRODUCTS

HAUZER FLEXICOAT 1250

The Hauzer Flexicoat® 1250 has been designed in sync with current market trends. It has a spacious loading capacity and optimised heating and cooling features. The system is big enough to accommodate larger volumes and reduce coating costs, yet small enough that customers can use it at capacity. The Flexicoat 1250 has the highest degree of flexibility in the Flexicoat family, with up to seven cathode positions. The innovative heating and cooling features make it the ideal choice for deposition of coatings at high coating speeds or low temperatures.

Technical specifications:

Effective coating volume:
 ø 810 mm x 850 mm height

Number of cathode positions:
 7

Maximum load mass:
 1.000 kg

Special features:

Heating and cooling plates

Optional retractable central cooling feature



HAUZER FLEXICOAT 1500

The Hauzer Flexicoat® 1500 is the largest Flexicoat system, a real 24/7 mass-production workhorse. It is a favourite among OEMs and coating service providers for decorative coatings on sanitary hardware and for mass coating of automotive components. The Flexicoat 1500 has two doors with three cathode positions each. It is installed on two frames for more layout possibilities, and comes with a range of options for loading equipment and parking docks.

Technical specifications:

Effective coating volume:
 ø 900 mm x 1500 / ø 1030 mm x 1500 mm height

Number of cathode positions:
 6

Maximum load mass:
 3.000 kg

Flexicoat 1500 Max variant:
 Larger table diameter
 for even higher productivity



METALLINER

For very high throughput of decorative coatings, the Metalliner inline coating system may be the right choice. Its cathodes are positioned vertically and the products move past the cathodes on fixtures, with or without rotation. A number of separate vacuum chambers can be configured with a wide range of Hauzer technologies: magnetron sputtering and rectangular or circular arc. This gives you the coating structure and productivity you need. Metalliner systems can also be equipped with plasma source etching, plasma activation and PACVD.



WHAT CUSTOMERS SAY ABOUT US



Geraldine Villain

Coatings and materials process leader at Delphi

“There are many coating companies that deliver ready-made recipes in their machines. But when we really have a specific request and the solution doesn’t exist yet, Hauzer is our valued partner. We worked with them before, they are open in their cooperation and they have a broad technology portfolio to start with.”



Bastian Gaedike

Coating Engineer HORN

“With other manufacturers you get a machine that is already set. With Hauzer, you can order a machine with all the upgrades and power supplies and flexibility you want.”



Ronaldo Ruas

Factory Engineering Manager at Deca

“In our experience, Hauzer makes very user-friendly machines. It is easy to train our operators. With low daily maintenance needs and a reliable process, we can keep our Hauzer Flexicoat® 1500 running almost continuously. It is very easy to see what the machine is doing and what we need to pay attention to.”

HAUZER



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