



Wear protection for any surface

How to easily increase the service life of your parts

Introduction & background

There are many ways to protect component contact surfaces against abrasion and wear while reducing friction: using plain or roller bearings in guides and joints, or adding wear strips or plates to larger contact surfaces. Each solution has specific advantages and disadvantages.

One key disadvantage of each solution is the unavoidable fact that an additional component needs to be added to the system. This runs counter to modern designs that are expected to be continuously improved upon and made more efficient. It may not always be feasible or efficient to add new components to a machine.

This is where coatings made of high-performance materials make a difference. They can be applied directly to the surface of components to add wear protection and reduce friction without adding any new components. This not only reduces costs, but also cuts weight, frees up valuable installation space, and simplifies manufacturing processes.





iglide® coating functionality & processing

iglide coating is a powder made of a tribologically optimized polymer blend that can be applied to all electrically conductive surfaces using the electrostatic powder coating process. Like all iglide materials, iglide coating powders are tribologically optimized and thus offer excellent coefficient of friction and wear. They also protect heavily stressed surfaces from wear — without any additional components.

The foundation for iglide coatings is formed by thermoplastic base polymers, which are mixed with various fillers and solid lubricants and pressed into a powder. The proportions of these components in the finished formulation determine the properties of the subsequent coating and the requirements for the application process.

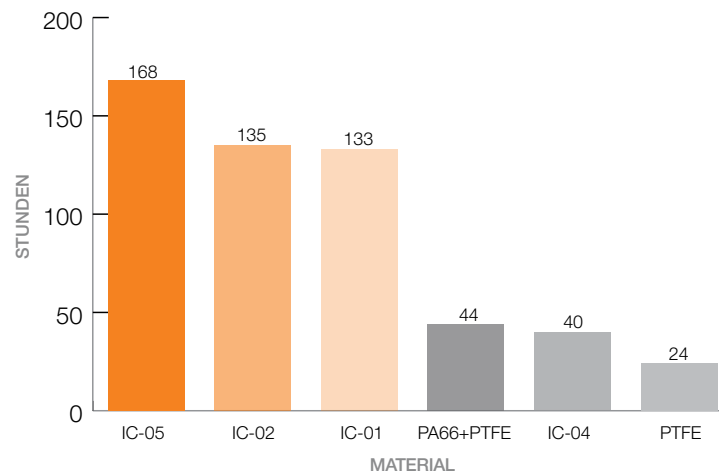
During the coating process, the powder is distributed evenly over the surface to be coated, forming a homogeneous layer. The resulting layer thickness can be influenced in the process. However, component surface conductivity decreases as coating thickness increases, impairing powder adhesion. The maximum achievable coating thickness depends on the conductivity of the part to be coated, its geometry, and the nature of the powder. The tolerance here is $\pm 25\mu\text{m}$. Depending on the material and geometry, a layer thickness of up to $500\mu\text{m}$ is possible with multiple coatings.

Perfect coating

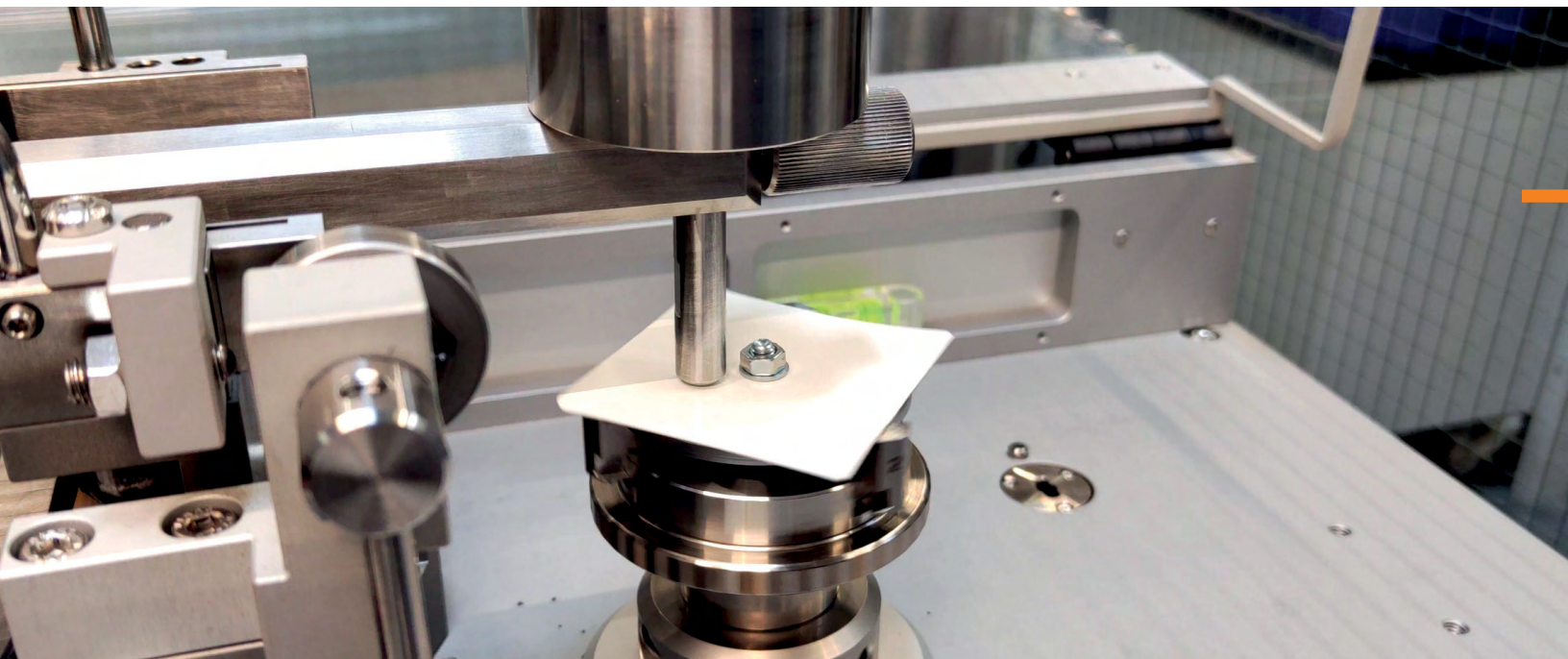
for your application

iglide coatings have been optimized for a wide range of applications. They differ primarily in temperature resistance, friction and wear properties, and color. The exact material data can be found in our material data sheets.

Since data sheets are of limited value in narrowing the selection of materials and assessing service life in tribologically demanding environments, iglide plain bearing and coating materials are subjected to over 10,000 different application-oriented tests annually in order to analyze wear behavior in a wide range of application scenarios. The data collected is incorporated into extensive databases and used in the various online configuration tools igus offers. These tools enable igus experts and customers alike to find the exact material that will provide the best fit for a given application — regardless of how demanding or complex.



Service life [h]; short stroke 5mm; speed 0.1m/s; load 1MPa;
temperature 23°C; shaft 304 SS



The iglide coating service: how it works

Iglide coating is available as a powder to be processed. If you already have a coating service provider or in-house processing capabilities, you can easily integrate iglide coating into your existing processes.

But igus also offers the entire coating service upon request. Based on your requirements, you will receive an offer after your technical drawing and the required layer thickness have been checked. You can then have igus coat your components.

Partial coatings are also available. Surfaces that are not to be coated must be masked or taped off before the coating process, and holes or threads must have plugs. This masking process incurs additional costs. Devices or silicone sleeves can be manufactured for large quantities to simplify these processes, minimizing additional costs.

What parts can be coated?

All conductive components of up to 8x12 and 3x1.9 meters can be coated. The parts must have at least one hole as a means to be hung. Holes can also be coated, with the achievable depth determined by the hole diameter. For diameters of up to 20mm, achievable depth is the same as the diameter. For diameters greater than 20mm, larger depths are possible.

Tips for self-coating

What should the pretreatment of the surface being coated look like?

Generally, the substrate must be free of greases, oils, release and drawing agents, corrosion products, and other contaminants. Pretreatments, such as blasting, roughening, phosphating, descaling, etc., can improve adhesion.

At what temperatures and for how long does the coating need to cure?

Temperatures and exposure times depend on the material in question. The relevant information can be found in our processing instructions, which can be downloaded free of charge from our website.

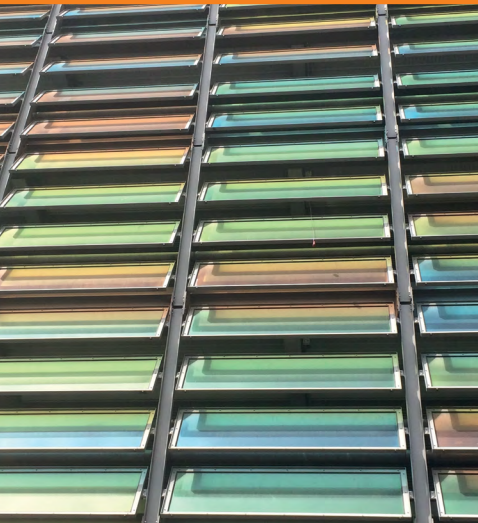
What volumes are the coating powders available in?

The standard containers are bags of 1kg, 5kg, 10kg, and 20kg and can be ordered conveniently and without a minimum order quantity in the igus online shop or through conventional ordering channels.

Are test quantities available in advance?

Yes, sample bags and sample quantities are available. Contact us!

Practical application examples



Coated springs for Venetian blinds with iglide coating

For this application, springs were coated with an iglide material and used to guide Venetian blinds. The manufacturer's problem was that lubricants do not last as long as the blinds. So he tested springs with an iglide IC-02 coating. Although the springs touched the aluminum housing in the test, the coated spring outlasted the housing. Nor was there any noise from the springs during the test. The coating makes lubricants and additional components unnecessary.



IC-05 coating for packaging machine

Doel Engineering, a manufacturer of packaging and processing machines, has reduced the frictional resistance of a machine series and increased hygiene standards by using iglide coating. The bubble wrap now slides over metal poles with an FDA-approved IC-05 coating instead of rollers. The replacement enabled Doel to shorten the system's throughput times, reducing the risk of wear and contamination for the packaging materials.



Adjustable office chair armrest with iglide IC-02 coating

A manufacturer of office chairs used to use components made of a POM material for armrests. Because the friction of this material was too high, he opted for an alternative from igus: overmolded aluminum linear guides combined with sliding elements made of iglide J, which greatly reduced friction. The customer previously coated the aluminum channels with a clear PTFE paint, which was not only expensive, but required a long lead time. So he opted to coat the components with IC-02 powder from igus, which further reduced friction and was even more cost-effective. The customer coats the inside with IC-02 for optimized performance and then paints the outside for a better look.



Conclusion

Replacing traditional components like bearings and wear strips with iglide coatings offers a modern and highly efficient approach to wear protection and friction reduction. By applying a high-performance polymer powder directly to electrically conductive component surfaces, igus provides a solution that eliminates the need for additional parts, leading to significant weight, cost, and space savings while simplifying the overall design.

iglide coatings are optimized for diverse applications, backed by extensive testing, and available both as a powder for integration into existing processes and as a full coating service from igus. The successful real-world examples, from coated Venetian blind springs to packaging machine poles, clearly demonstrate that iglide coatings deliver superior longevity and performance, making them a versatile and practical solution for increasing the service life and efficiency of your parts.