

It's the surface that counts

A well-known expression claims that “It's what's inside that counts”. However, in some cases the surface is at least as important. Höganäs, with ongoing work in its PoP Centre, serves customers within a wide range of industries that apply coatings as a means to improve the properties of the surface for various purposes.

Surface coating offers a cost-efficient solution to impart special properties to base metals thereby improving wear and corrosion resistance of exposed areas. Whether the coating is applied to new products or as a means of refurbishing damaged parts, this method significantly extends the operating life of the equipment.

The different coating techniques are commonly applied to a wide range of industries all needing to improve wear, corrosion, heat, or impact resistance. Today, Höganäs provides its unique spherical satellite free surface coating powder solutions to companies within a wide range of industries, such as agriculture, automotive, chemical, energy production, glass mould, heavy motorised equipment, marine, paper, petrochemical, plastic extrusion and steel manufacturing.

Surface coating techniques

Höganäs atomised powders are particularly suited to the needs of a range of surface coating techniques:

Powder welding

This technique, typically used for glass moulds, smaller parts and repairs, uses a standard oxy-acetylene torch and powder fed into the flame from an attached hopper to achieve a smooth,



Flame spraying is ideal for coating cylindrical parts

dense coating with a diffusion bond to the base material.

Flame spraying

Ideal for coating cylindrical parts, this technique begins with applying the powder to the base material at high speed by spraying with the gun and then fusing the deposit with a fusing torch to obtain a dense and well-bonded coating.

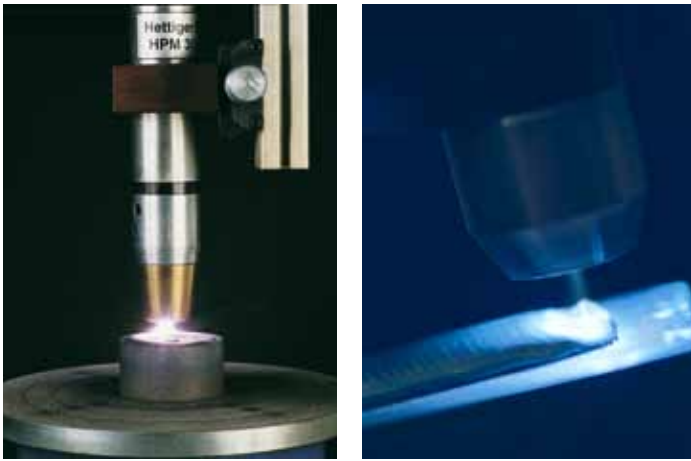
PTA

PTA (Plasma Transferred Arc) surfacing is a welding method that can be highly automated. A combined arc/plasma stream forms a limited melt on the work piece resulting in a low base metal dilution and a dense, uniform coating.

Laser Cladding

Particularly suited for high-volume automated applications, this technique utilises a high-energy laser beam to create intense heat input that bonds alloys to the surface with a low degree of dilution (<5%).

The PoP Centre hosts a wide range of test equipment that covers all the above mentioned surface coating techniques. While equipment for powder welding, flame spray and PTA are familiar application equipment in the laboratory, capacity for the newer technique, laser cladding, was added more recently.



PTA surfacing (left) and laser cladding (right)

Improving customer productivity and cost-efficiency

One of the main purposes with the PoP Centre is to help customers reduce cost and increase productivity. By having access to the right people and the right equipment, Höganäs is able to work closely with customers to solve problems as well as improve processes and the results they get with the powder.

Each year, Höganäs performs about 170 service investigations related to surface coating customers worldwide. Höganäs has a dedicated well-balanced team that provides expertise in a variety of areas such as welding, spraying, metallography wear, fatigue, and corrosion. The team supports customers by analysing samples received, after which they report back with suggestions for corrective action to avoid the problem. On site customer assistance to adjust spray or welding parameters is a much appreciated support that continues to grow.

“The coating methods are a means to an end – this is the way to deposit powder in position on the surface. Höganäs has the capability to measure the surface hardness, perform metallographic tests, and corrosion resistance to name a few. Moreover, by examining the coating and substrate, the bonding strength as well as the degree of dilution can be measured. Testing in the PoP Centre, followed by interpretation of the results, provides the customer with an action list to improve the quality of the welding or coating. Our technical support, as well as the recognised high quality of our powder, was actually the highest ranked main selling points in our most recently conducted customer survey,” says Thierry Calmes, Marketing Director Surface Coating.

Thierry states that Höganäs has just started to develop wear evaluation methods to generate more wear data. The first type of wear to be evaluated will be abrasive wear according to the ASTM G65 standard (see text box for more information).

Besides in-house services, the support team also travels to customers to demonstrate how to best use Höganäs’ powders and to perform on-site demonstrations with the customers’ equipment. “We will soon be able to check the composition of the weld on site which will further increase the pace and quality of the service to our customers,” says Thierry.

Driving new solutions with customers

Höganäs also utilises the PoP Centre to work closely with customers in order to develop new solutions and application techniques. “Our in-house capability enables our development team to test new types of powders and mixes for new applications and to make customer and project trials. At the moment, development is often for laser cladding as this is still a growing technology. When a customer project provides significant volume potential, we can make small atomised batches in order to develop and tweak products for specific applications”, continues Thierry.

Closely related to customer support, is training. Höganäs offers its customers the opportunity to attend seminars for their application areas as well as on-site courses. During the last 12 months, Höganäs provided seminars in China, Brazil, Europe and Thailand to name but a few.

Services, like the web shop (www.hoganasthermalspray.com), are designed to provide our customers with a straightforward way to be guided to the proper powder solution and to make online orders.



Bottle plunger and neck rings with high wear-resistant surfaces

ASTM G65 is a test method for determining the resistance of metallic materials to scratching abrasion by means of the dry sand/rubber wheel test. This test method is intended to produce data that will reproducibly rank materials in their resistance to scratching abrasion under a specified set of conditions.