Metallisation
Thermal spray equipment and consumables

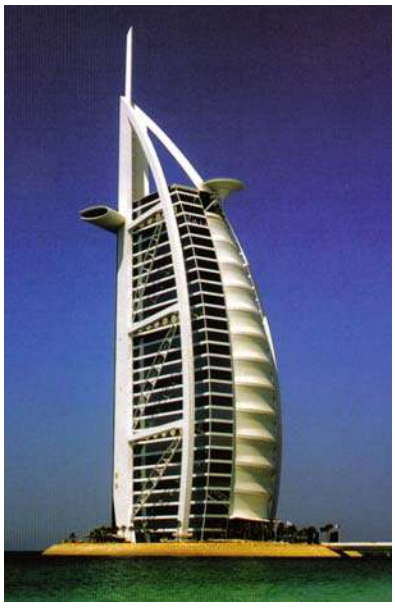
Metallisation System Protecting the Future of Burj Al Arab

Metal or thermal spraying is a technology, which protects and greatly extends the life of a wide variety of products in the most hostile environments and in situations where coatings are vital for longevity. Metal spraying is carried out in a wide range of anti corrosion and engineering markets.

Metallisation has been synonymous with surface coatings since 1922. From its beginnings as a company providing an answer to corrosion problems on structural steelwork, successive generations of highly respected principals have led Metallisation to its current position, where it is respected as an expert in the technology of surface coatings.

Metallisation has many diverse clients around the world from the USA, the Middle East, Far East and Australasia, actively supported by trained distributors. The common denominator for all of Metallisation's clients is to provide surface coating technology for protection and longevity of equipment, structures, vessels, pipelines and storage tanks.

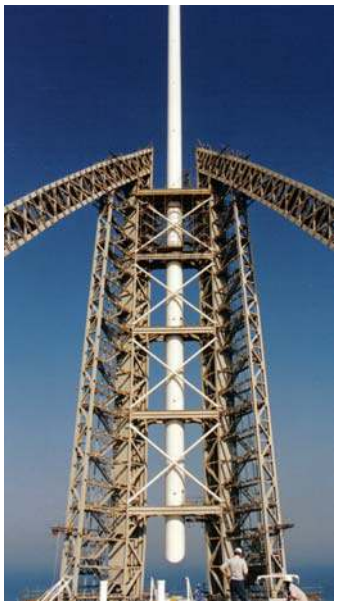
One such client is Anti Corrosion Protective Systems (APS), based in Dubai, who have been using Metallisation Arcspray equipment for the last ten years across a variety of projects, including the anti corrosion protection of the world famous Burj Al Arab Hotel in Dubai. APS, founded in 1978, offers a wide range of specialist coating services to the construction, oil, gas, power and water industries throughout the Middle East, the Caspian region, India, Pakistan, the Near East, Far East and Pacific Rim regions.



APS has vast experience in metal spraying projects across a diverse range of companies and industries, some of those projects include:

Burj Al Arab Hotel

APS chose the Metallisation Arcspray equipment as the preferred system to protect the Burj Al Arab hotel, after being awarded the contract from the Jumeirah Group to spray the vital structural components of the hotel frame to protect against corrosion.



In total, 10,000m^2 of steelwork was arc sprayed, over an intermittent six-month period. The items sprayed included the heli-deck framework, roof mounted mast and 6 diagonal support braces, each weighing in excess of 200 tonnes. The surface was first grit blasted to SA 2.5 cleanliness and then sprayed with 150µm of aluminium using Metallisation's Arcspray 140 and Arcspray 700 systems. The Arcspray 140 system offered excellent flexibility for hard to access areas, due to its long reach and flexible drive system. The Arcspray 700 system was used to spray large, less complicated areas as quickly as possible, due to its high spray rate. An epoxy sealer and three coat paint system was then applied for aesthetic reasons and finished with a topcoat of 50 microns of polyurethane. The aluminium coating should guarantee a 15 to 20 year protection against corrosion in the harsh, coastal environment in which the Burj Al Arab stands.

Major Gas Operation, in United Arab Emirates

As well as protection against external corrosion, metal-sprayed coatings have been applied to the internal surfaces of pipes and vessels. The internal surfaces face corrosion as they are exposed to moisture and oxygen, particularly at the sulphur 'splash zone'.

The sulphur dump drums and pipes, used to store and transfer sulphur in a refinery, were sprayed using the Arcspray 140 and Arcspray 700, for corrosion protection. Again, the surface was blasted to SA 2.5 cleanliness and sprayed with aluminium to a thickness of 350µm. The aluminium was then sealed with a high temperature Silicone Aluminium sealer over a total surface of 1681m^2. As the coatings were internal and not visible, no painted topcoat was required. The project took over two months to complete.

Various other structures have also been sprayed as part of the project including condensers and other drums, vessels and pipework. Discussions are ongoing between APS and the customer regarding the future projects, which can benefit from metal-sprayed coatings to give long-term corrosion protection.

Major Offshore Operation in the North Sea

As well as inland applications, APS has used Metallisation equipment to spray offshore installations. Various oil and gas platform structures have benefited from the application of thermal sprayed aluminium (TSA).

Possibly the most corrosive environment of all is the area on a platform called the splash zone. In this area, the steelwork is subjected to very high corrosion levels due to the elevated level of moisture, oxygen and chlorides (salt). A thick coating of aluminium can be thermally sprayed locally to the splash zone, to offer exceptional corrosion protection in this highly corrosive area.

On one particular installation for the North Sea, 2000m^2 of splash zone on a platform was grit blasted to cleanliness specification of SA 3, then sprayed with 300µm of aluminium using Metallisation Arc140 and Arc700 systems. The coating was finished with 350µm of polyurethane paint.

Major Saudi Petrochemical Process Company

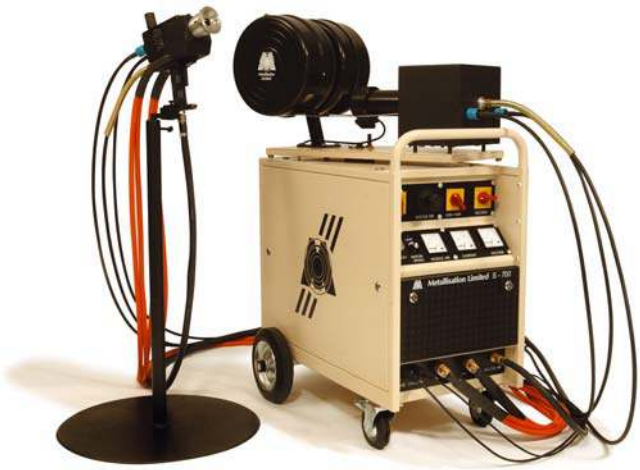
APS recently completed a major project at a new petrochemical processing site in Saudi Arabia. Three of the vessels, totalling 3000m², were blasted to SA 2.5 and coated with 275 microns of Thermal Sprayed Aluminium. 30 microns of high temperature Silicone Aluminium sealer, was applied using the Metallisation Arcspray 700 and Arcspray 140 systems. The Arcspray 140 system was fitted with a 20-metre supplies package and was used for areas of difficult and restricted access. The project took over two months to complete.

The Arcspray Process

In the Metallisation Arcspray process the raw material, in the form of a pair of metallic wires, is melted by an electric arc. This molten material is atomised by a cone of compressed air and propelled towards the work piece. The molten spray solidifies on the component surface to form a dense, strongly adherent coating suitable for corrosion protection or component reclamation. Sprayed coatings may also be used to provide wear resistance, electrical and thermal conductivity or freestanding shape.

Major advantages of the Arcspray process are that the coatings are available for almost instant use, with no drying or curing times, and there is no risk of damaging the component. In addition, the arcsprayed aluminium coating possesses a higher degree of bond strength than some other thermal spray processes. Finally, the use of compressed air and electricity alone provide much more economic coatings.

New Product Developments



Metallisation's newest system, the Arcspray 170, offers high throughput with large diameter wires (1/8" and 3/16") and is the recommended system for large scale, anti-corrosion applications. The Arc 170's proven and patented Synchrodrive push/pull system has no motor in the pistol, resulting in a lighter, more manoeuvrable hand-held spray gun, which has a 10m wire dispense distance. The system's robust design also includes the established Constant Geometry (CG) head, which ensures a smooth and consistent spray quality. In addition, the all new 700Amp energiser is designed with a harsh environment in mind, with all control electronics sealed from dust intrusion. All these factors combined, result in unrivalled spray rates, superior reliability and excellent time and cost savings. The system can be packaged for workshop and site applications giving clients optimum ease of use in a range of situations.

Graham Young, Managing Director at APS, says: "We have been using the Metallisation 700 and 140 units for the last ten years and the development of the Arc 170 is welcomed. The timing is perfect and with major projects in hand for TSA in excess of 50,000m² it could not have come at a better time for APS. The high spray rates of the newly purchased 170 units will certainly help us to deliver high quality production with quicker turnaround times, which means less downtime for our customers. We took delivery in February 2006 of our first 170 and within three days it was on a major site spraying the interior of Abu Dhabi Lining reactor vessels."

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