EDS INTERNATIONAL INC
Head Office:
18495 Meloche suite 101
Pierrefonds, QC Canada H9K 1N8
T: +1-514-865-6350
E: satish@edsmtl.com

A N O D *Plasma Spray*

Manufacturing
Refurbishment
Job Work

Stamp of Excellence

The Company

ANOD PLASMA SPRAY LIMITED (APSL) *is a Public Limited company involved in refurbishment, coating, and modification of Turbine Components for more than a decade.*

APSL was founded as a private company in 1988 to cater the requirements of abrasion resistant coating for textile, petrochemical, and engineering industries. Subsequently, it was transformed into a Public Limited Company.

APSL has dedicated plant, machinery, Quality Assurance (QA) equipment, and experienced manpower for its core activities. With our expertise and experience in service innovation and repair development, we aim to bring significant cost savings and life cycle improvements to our customers.

APSL has been inducted as a member of Diamond Service Network of Mitsubishi Heavy Industries Limited in India for Repair and Refurbishment Services.

APSL is ISO 9001:2008 certified in conjunction with certificate of appreciation from Mitsubishi Heavy Industries (MHI) Japan, and various job completion certificates from its satisfied customers.

Facilities

APSL has dedicated plant, machinery, and man-power to carry out following type of services:

- ***Refurbishment of Hot Path Components of Heavy Industrial Gas Turbines***
- ***Refurbishment of Under Water Components of Hydro-Electric Turbines***
- ***Refurbishment of Thermal Power Components of Steam Turbines***
- ***Refurbishment of Components of Textile and Paper Industries***
- ***Rotogravure Cylinder Manufacturing for Printing Industries***
- ***Aluminium Collapsible Tube Manufacturing for Pharmaceutical Industries***

Valued Customers

APSL has been working hard for more than 20 years to satisfy its customers to the fullest. Constant up-gradation of facilities at APSL is possible only because of the association with its customers. Few of APSL's customers include :

- *Mitsubishi Heavy Industries/Mitsubishi Hitachi Power Systems*
- *Alstom Export*
- *Samsung Techwin*
- *NTPC Limited, Auraiya*
- *NTPC Limited, Jhanor*
- *NTPC Limited, Anta*
- *NTPC Limited, Kawas*
- *NTPC Limited, RGCCPP*
- *NTPC Limited, Tanda*
- *BHEL*
- *NHPC Limited*
- *Spectrum Power Generation Limited*
- *L&T Limited*
- *Reliance Industries Limited*
- *Rajasthan Rajya Vidyut Utpadan Nigam Limited*
- *Oil India Limited*
- *Indo Gulf*
- *Steel Authority of India Limited*
- *Flex Industries Limited*
- *Lohia Group*
- *IFFCO*
- *Gas Authority of India Limited*

APSL would also like to thank all other customers as well, whose contribution to APSL's development is inexpensive. Further, APSL would like to increase the existing list of customer to the maximum possible.

Engineering

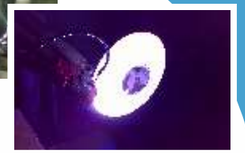
APSL has a dedicated Engineering Workshop for manufacturing and modification of Jigs and Fixtures for various turbine components.

These jigs and fixtures move along with the component during the repair process.

APSL has a work force of technically qualified personnel to take care of the necessary developments and modifications required during/for a particular project.

The type of Jig/Fixture design vary with the component under refurbishment or manufacture.

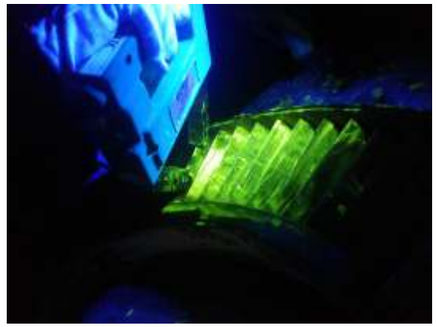
Quality Assurance

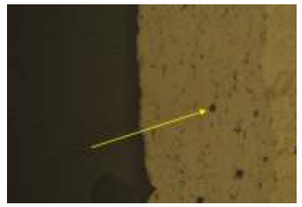


APSL thrives in repair driven by quality. Dedicated Metallurgical Laboratory is available at APSL for analysis of any process during the repair. Various test samples are drawn during the process and checked in the lab to ensure the quality standards set by APSL.

Destructive as well as Non-Destructive testing is performed in the lab. World renowned quality assurance equipments are installed in APSL for this purpose. Various quality assurance check points and involved in the repair process:

- ***Metallographic Analysis***
- ***Metal & Ceramic Hardness Testing***
- ***Base Metal Thickness Testing***
- ***Coating Thickness Testing***
- ***Surface Roughness Testing***
- ***Test Specimen Processing***
- ***Surface Defect Analysis by Penetrant Testing***





Heat Treatment

Heat treatment is an important factor in repair of gas turbine components. The component material is generally a superalloy, and due to the engine run conditions various wear and tear occurs. A typical of the wear and tear is Carbide formation. After the heat treatment, these carbide are dissolved making the component weldable.

APSL has dedicated heat treatment facility for various components and processes. Following Heat Treatment Capacity is installed at APSL:

- ***Dedicated Vacuum Heat Treat for Super Alloys***
- ***Dedicated Vacuum Heat Treat for Brazing Process***
- ***Dedicated Atmospheric Heat Treat for Silo Type Components***
- ***Heat Treat for Heat Tint after De-Coating***
- ***Various Muffle Furnaces for Small Components***








Tube Manufacturing

Aluminium Collapsible Tube manufacturing process is a development at APSL. Ointments & Creams for Pharmaceutical & Cosmetic purposes are filled inside these tubes.





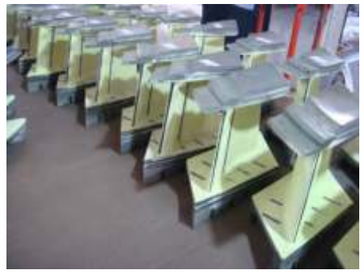



Work Experience

APSL has carried out repair, refurbishment, coating, and modification of gas turbine hot path components for Mitsubishi Heavy Industries (MHI) Japan, NTPC Limited, Oil India Limited, Alstom Export, Larsen & Toubro (L&T) Limited, etc. APSL has successfully refurbished more than 2000 hot path components till date.

APSL has infrastructure, and capability to carry out refurbishment and coating of gas turbine critical components, such as Combustor Baskets/Liners, Transition Pieces/Ducts, Vane Segments/Nozzles, Entry Segments, Transition Segments, Inlet Segments, Heat Shields, Silo type components, etc.

Apart for these, refurbishment of moving gas turbine components such as Blades/Buckets is under development at APSL.



Refurbishment Services

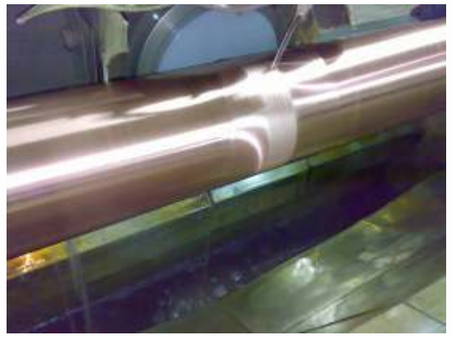
APSL deals in repair, refurbishment and coating of Components of Land Based as well as Under Water Turbines. This includes various extensive processes. These processes are available at APSL under a single roof which is quite extraordinary in the Indian market. These processes include:

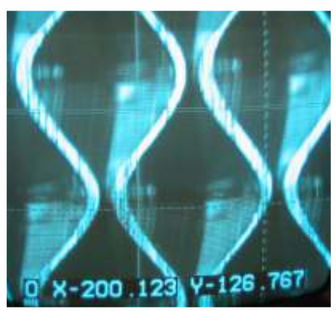
- ***Heat Treatment***
- ***Protective Coating***
- ***Engineering***
- ***Quality Assurance***

Rotogravure Cylinder Manufacturing

Apart from the gas turbine refurbishment facility, APSL also manufactures Rotogravure Cylinders. These cylinders are used in the printing industries for further use. APSL manufactures these cylinders by Electronic Etching process as well as Chemical Etching process.

Electronic Engraving machines have been carefully selected to provide the best possible result. Care is taken by APSL to provide the best quality in the fastest possible time to its customers.





Coating

Protective coatings are very common in a typical turbine component repair. Apart from being common, coatings are very important feature of the repair. Coating can provide better bonding, extra hardness, wear resistance, temperature resistance to the component. Coatings are also common in Textile and Paper Industries and Under water Hydro-electric Turbine components.

Different types of coating processes are available at APSL. Depending on the type of repair, any one of them, or multiple, can be provided. Coating Processes available at APSL are :

- *Atmospheric Plasma Spray (APS)*
- *High Velocity Oxy Fuel (HVOF)*
- *Liquid Fuel High Velocity Oxy Fuel (LHVOF)*
- *Electroplating - Copper & Hard Chrome*

Vacuum Plasma Spray (VPS) or Low Pressure Plasma Spray (LPPS) is under development at APSL.