GROUP OF COMPANIES
(AN ISO 9001: 2008 Certified Company)

AK-SVCC

Supersonic Velocity Continuous Combustion Process
(A Unique thermal spray cladding)

AN ISO 9001:2008 CERTIFIED COMPANY

MFG OF ALL TYPES WEAR PLATES

A.K.INDUSTRIAL CORPORATION (INDIA) PVT.LTD
Manufacturer Of Wear Plates, Boiler,
Tube Coating, ARC SPRAY Services

A.K.INDUSTRIES
(Manufacturer / Exporter/ Supplier Of All Types
Welding Electrodes, Industrial & Medical Gases,

A.K.MILK PRODUCT PVT.LTD
Non Chemical and Non Human Touch
Milk Products Lowest bacteria and Baby Products.

RANDHWA ENGINEERING ENTERPRISES
Heavy Fabrication Job Works

Facts about AK SVCC (BOILER TUBE & SHAFTS COATING)

Material Feed	:	Wire
Spray Medium	:	Supersonic Air Plasma
Deposition Efficiency	:	Since Plasma arc Atomization occurs the particles are always heated beyond their melting temperature resulting in good deposit efficiencies.
Coating Thickness	:	Can be upto to maximum 7 mm using special materials
Flexibility	:	Coating layer is easily achieved to address specific problems areas And wear / erosion Resistantence.
Residual Stress	:	Spray particles are concentrated in a larger area resulting in low residual stress.
Crack	:	Low risk of coating cracks or spalling during application due to low carbide content
Oxide formation	:	Medium.
Repairability	:	SVCC coatings offer the ability to perform repairs easily
Permeability	:	Coatings permeability is very less to both liquid & bases due to higher thickness.
Heat Input	:	Due to low BTU output very little heat is transferred to the substrate.
Stand off:	:	It is 7 inches and can be performed in spaces that are more restricted.
Sprayer Fatigue	:	SVCC spray torch is very light in weight which Significantly reduces the fatigue of an operator.
Safety	:	No Flammable gases is used and it is intrinsically safe to use in confined spaces.

MFG OF ALL TYPES WEAR PLATES

Typical Applications :

- Covers all Major Applications found in industries like Cement ,Steel, Mining, Refineries, Earth Moving, Sugar,Power, Chemical etc.
- Shovel Buckets Loader Bucket Dozer Blades, Dumper Body Chutes Hoppers Bins,Apron , Feeder,Louvers,Grit Cone Cyclone Screens etc

Note : In Addition to Standard Plates, Specific shape and Size of the Plate can be cut, Bend and Fabricated as per Customer Drawing /Requirement.

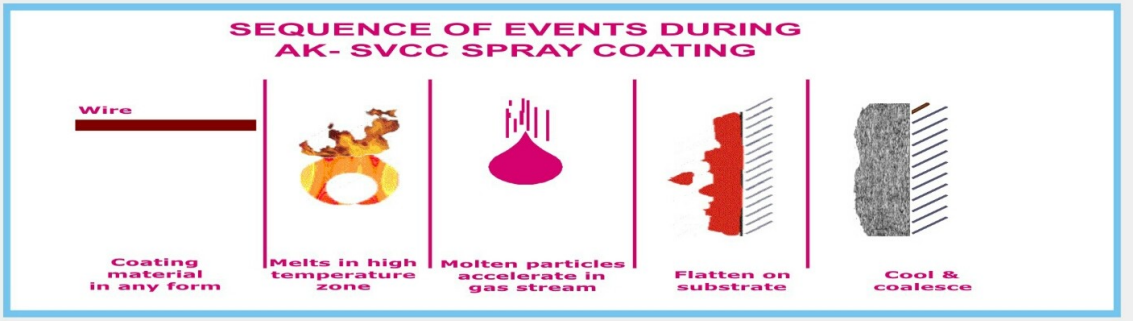
_web site: www.akgind.com

WHAT IS THERMAL PROCESS ?

Thermal spray is a process where metal/or ceramic material are heated in spray gun, and then propelled toward a substrate as fine spray particles to build up a coating layer. Heating of the material in the spray gun typically takes place either by gas combustion or arc heating.Thermal spray processes can be divided into two basic categories:

1 - LOW VELOCITY

2 - HIGH VELOCITY - AK SVCC process is this category



CHARCTERISED OF AK SVCC PROCESS

High velocity thermal spray systems such as the high Velocity Oxy-fuel (HVOF) and AK supersonic velocity continuous combustion (AK Svcc) systems have been successfully utilized For in-situ applications for the past decade.
A supersonic velocity thermal spray process is one where the material is atomized and / or accelerated under supersonic gas velocities .For this reason, the energy of the gas stream is focused directly on the material to be sprayed, producing a coating that has low permeability, and has a homogeneous coating structure than a low velocity coating.
Further the bonding strength is excellent

Permeability of a correctly selected and applied coating in a corrosion environment is the primary characteristic that determines the coatings useful life. if the coating is permeated at a rapid rate by corrosive media, and if the media reacts with the substrate underneath the coating, the bond of the coating to the substrate will be degraded. this substrate degradation may result in the coating spalling from the surface. AK SVCC coatings have very high permeability due to lowest and special sealing process utilized

AK SVCC COATING STRUCTURE AND ITS IMPORTANCE

Supersonic velocity thermal spray coatings has a significantly improved structure over a Comparable low velocity coating.

in erosion / wear application, a finer more homogenous structure results in superior coating life. This is due to both improved toughness and improved hard phase distribution. The wear resistance of a particular coating material commonly double when applied with a high velocity thermal spray process versus a low velocity process.

SPRAYING BY AK SVCC PROSESS

In corrosion applications, a finer more homogenous coating will be less likely to suffer metallurgical segregation effects.Segregation occurs to a larger extent in low velocity Coatings where particles are larger, and low alloy heavily oxidizedlayers form around each spray particle. Thus low velocity coatings will corrode internally at a much higher rate, leading to premature coating failure.

BENEFITS OF AK SVCC TECHNOLOGY COATINGS

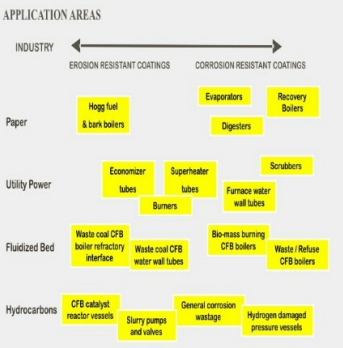
- Repairability of coatings is key factor for coating installations which is possible here.
- Selective alloying can enhance the repairability of coatings and therefore, offer a viable solution for protection of low-alloy material and the same is established in AK SVCC process.

- AK SVCC has in some grades alloy type with a binder phase composition to combat corrosion and erosion. The material maintains its strength at high temperature and resist brittle fracture.
- AK SVCC provides erosion/corrosion protection superior to technologies traditionally used in boiler Tubes. it exceeds the erosion/ corrosion and thermal cycling resistance of carbon steels/SA 210 Gr, thermal sprays, HVOF's and ceramics.
- Corrosion Resistance : Some grade of AK SVCC are based on master alloy (Nickel, Chromium,Moly etc.) it is vastly superior to carbon steel/SA 210 Gr.
- Super Alloy Barrier : AK SVCC sprayed special coatings achieves almost fused, homogeneous master alloy barrier, unlike coatings, sprays and ceramics which adhere with mechanical bonds.
- Coatings thickness : Ak SVCC system provides a 500 micron to 7 mm thick alloy barrier compared to typical 200-700 micron of metallized coatings / HOVF coating for some grades of material.

- Very fast application so shut down period is not increased.
- Life achieved is minimum more than two times against carbon steel which sees extreme corrosion and erosion when exposed to high temperature of boiler tubes.
- Coatings can have differential thickness depending on different wear rates at different locations.
- No combustible bases required at site hence safe for the plant.
- Since the chance of selection of special alloys is available it can be sprayed according to the particular environment on the boiler application
- Coatings can be easily repaired

BENEFITS OF AK SVCC SPRAY ON BOILER TUBES :-

- **AK SVCC spray application provides protection against corrosion & erosion combustion products (solid & gases).**
- **The combustion in the boiler is characterized with high turbulence with high sold loading.**
- **Refractory to have heat transfer.**
- **This zone is the most affected zone due to change in direction of downward sliding solids causing corrosion / erosion.**
- **Hence AK SVCC spray is being applied to this area to improve erosion/corrosion locally and improve availability of boiler.**



AK Experience in IN Situ Welding :

1. Understanding of equipment fitment at site in shortest time
2. Availability of service engineer at site to handle emergencies
3. Spare part back up
4 Trained and experienced technicians supervisors
5. Knowledge of Welding Procedure of Roller and Table Liner
6. Continuous monitoring of temperature and unusual happening
7. System gets cut of in case roller movement stopped due to drive failure etc.
8. In-situ Reconditioning of Worn Parts of Vertical Mills

AK RECLAMATION FACILITY

AK RECLAMATION FACILITY SPECIALIZES IN CRITICAL TURNKEY RECLAMATION JOBS INVOLVING WELD SURFACING MACHINING,PRE & POST WELD HEAT TREATMENT WITH LATEST TECHNOLOGIES AND UP-TO-DATE SURFACING MATERIALS

SERVICES OFFERED :

1. WEAR PROTECTION

2. RECLAMATION

3. METAL JOINING

4. THERMAL SPRAY

5. ANALYSIS OF WEAR FACTORS

Corporate Office & Plant

GROUP OF COMPANIES

(AN ISO 9001: 2008 Certified Company)

A.K.INDUSTRIAL CORPORATION (INDIA) PVT.LTD

PLOT NO - C-21 M.I.D.C. BARAMATI DIST-PUNE (M.H) INDIA 413133

PH : 02112-243444, 243222 Mob.: 07721972626 / 09049449999

Email : arcspray@akgind.com Web : www.akgind.com

_web site: www.akgind.com