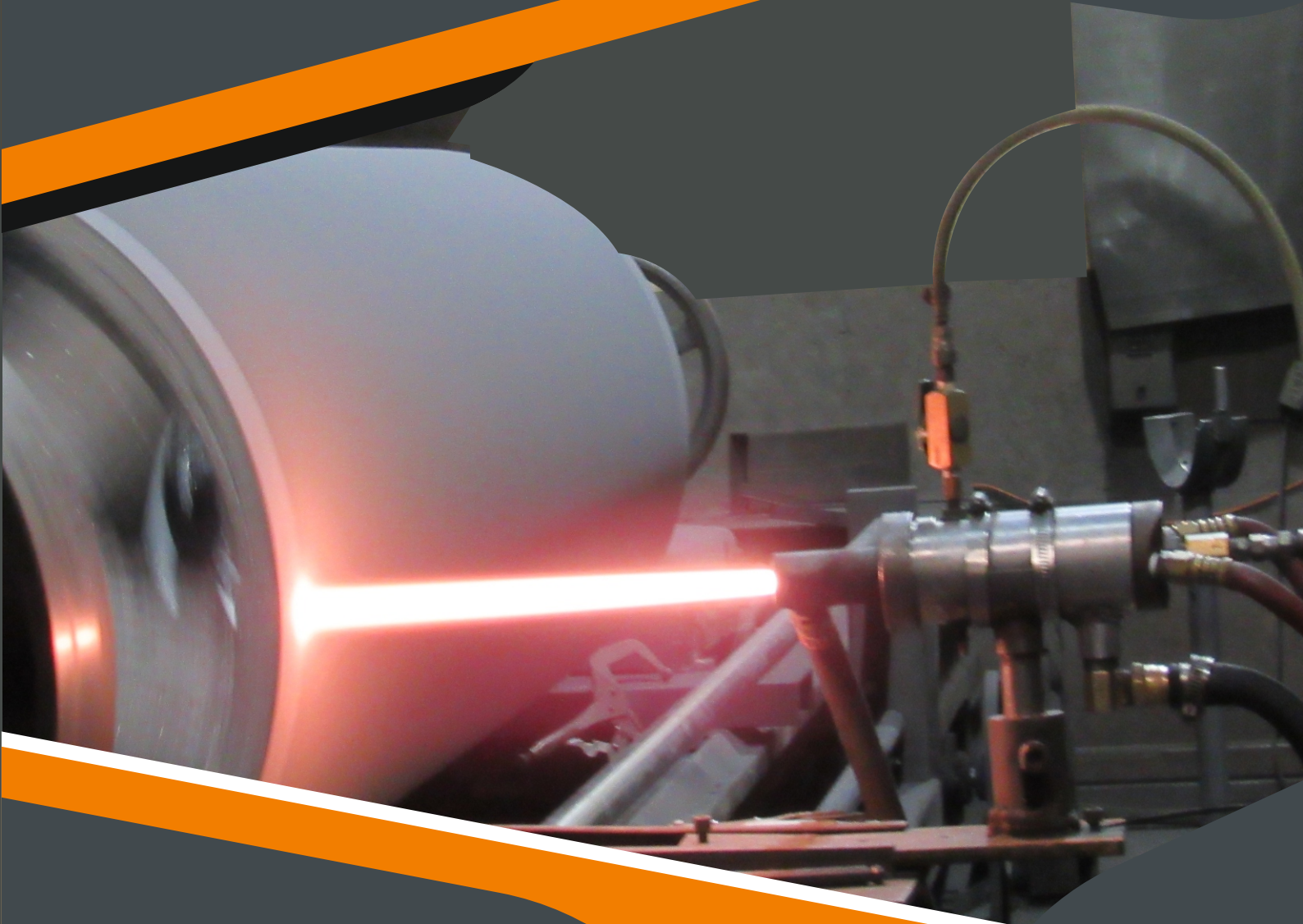


# SHAFEL TECH



Advanced Thermal Spray Coating Technology  
D-Gun & Robotic HVOF Spray

## About Our Company

The company was established in 2000 catering to several industries for all their thermal spray coating requirements with high quality precision carbide, ceramic and metal coatings by one of the most advanced surface coating technology namely Detonation Spray Coating (D – Gun Coatings) and Robot mounted HVOF coating.

D – Gun Coatings has the highest bond strength coupled with the lowest temperature of substrate heating compared to any other coating technology available in the market today. This ensures high quality dense bond strength coatings on very complicated and thin substrate (components) without compromising in dimensional stability and accuracy.

Shafel Tech is managed and run by a highly qualified technical team with excellent exposure to various engineering field in the areas of reconditioning and improvement of service life with cost effective alternatives for the past several years since 2000, can handle any type of wear or erosion related problems the industry faces. Shafel Tech has the potential and experienced capability to handle complicated engineering challenges in the field of surface modification and reconditioning to enhance component life, to withstand wear / erosive atmospheres.

Shafel Tech is ISO 9001:2015 certified company committed to quality which is consistently proven with its high end customers from Aviation (Hindustan Aeronautical Ltd.) to pump sleeves in Chemical plants to piston rods in Oil & Gas Industry to rollers in Textile machinery & Steel Industry.

## SERVICES OFFERED

Thermal Spray Process	Reconditioning / Rebuilding	Manufacturing
D-Gun Coatings HVOF Metal Flame Spray Metal wire Arc spray	Submerged Metal Arc Welding Stellite welding TIG, MIG & Arc welding	Machining Services Grinding Services

## COATING MATERIALS

CARBIDES	CERAMICS	CHROMIUM BASED	NICKEL BASED	METALS
Tungsten Carbide	Alumina (99.7%)	Chromium Based Hard Coatings in various Matrix	Nickel based Hard Coatings in various Matrix	Copper Aluminium Stainless Steel Brass, Bronze
Chromium Carbide	Alumina – Titania (87-13) & (60-40)			

## COATING PROPERTIES

Max. Hardness	Max. Temp. Withstand	Max. Bond Strength
Upto 1250 HV (72 HRc)	750 C	Above 10,000 psi
Wear Protection	Corrosion Protection	Special Properties
Granular Erosion Sliding Friction Fretting & Scuffing High Temp Wear	Atmospheric Corrosion Hot Gas Corrosion Oxidation & Chemical Attack	Electrical Insulation Electrical Conduction High Temp Application Abradable Coatings Diffusion Barriers

## Application Industries

### Aerospace



In Aviation manufacture industry almost 75% of the engine components, turbine blades and moving components are coated with some kind of protective barrier to ensure maximum performance in the lowest weight ratio. The primary functions of thermal spray coatings in the aero industry are thermal barriers, high temperature corrosion resistance, abradable and high wear resistance at high temperatures. Shafel Tech is supplying coatings for Hindustan Aeronautical Ltd., Bangalore since 2000.

### Components

Turbine Blades

Combustion Vanes

Turbine Vanes

Landing Gear Components

Closing Pistons

Support Bearings

### Steel

Steel Industry equipment is subjected to extreme conditions of heat, cyclic shock, metal friction, corrosive atmosphere and above all severe wear in a relatively short period of time. Hence Steel Industry equipment and handling machinery requires excellent surface protection characteristics not only to withstand the extreme conditions but also to give sufficient life to make the process of steel making cost effective.



### Components

Bridle Rolls

Deflector Rolls

Run Out Table Mill Rolls

Gripping & Guiding Rolls

Looper Rolls

Furnace Rolls

Zinc bath Rolls and many more rolls

Sleeves & Shafts

## Paper & Print Industry



Today's machinery used in Paper & print Industry process very high speed production. The rollers used in the machinery are subjected to severe wear & corrosion by ink and other particles. The gripping of paper is subjected to severe wear and the gripper loses its gripness, hence high strength coatings are required to withstand erosive wear but maintain roughness. Other rollers require low coefficient of friction and to prevent wet paper, adhesives, ink from sticking to rolls surface.

### Components

Calendar Rolls

Guide Rolls, Suction Rolls

Ink pick-up 5 start thread rollers

Grippers and grip rollers

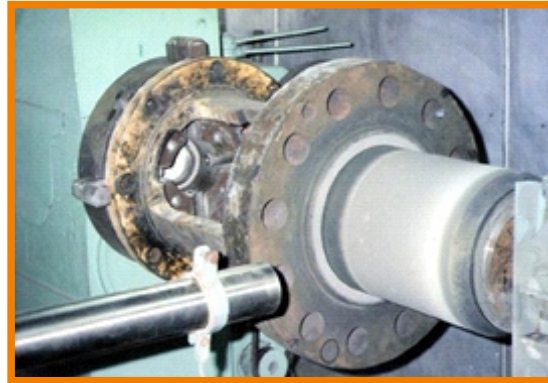
Printing Rolls

Coiling Rolls

Plate cylinders

Corrugated Rolls etc.

## Oil & Gas Industry



Components in this industry are subjected and exposed to severe wear, heat & corrosion. Many parts are coated with Thermal spray coating to act as excellent high hardness & high toughness barrier to these conditions. Primarily piston rods, shafts & sleeves when worn out by a few hundred microns will lose its applicability in this industry.

### Components

Gas Compressor Piston Rods

Mud Pump shafts

Seal Rings

Wear Rings

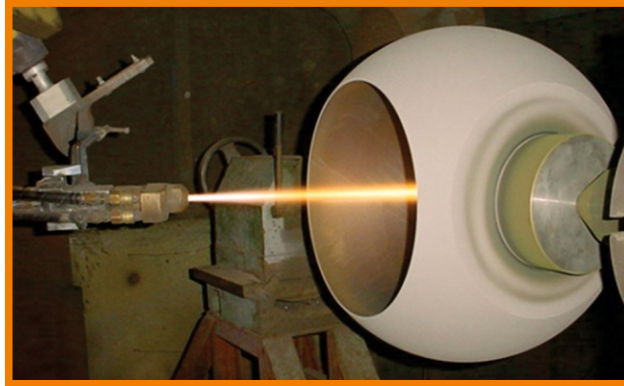
Sleeves & Plungers

Slush Pump Piston Rods

Ball Valves

Wear Rings, Gate Valves etc.

## Power Generation

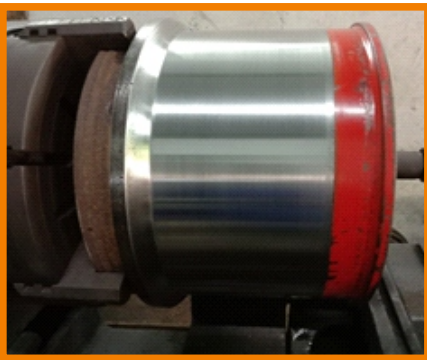


In Thermal Power industries there are various moving parts subjected to high heat, corrosion and wear. Hard surface thermal spray coatings act as an excellent barrier to save from material degradation and thus enhance life.

### Components

<b>Guide Vanes</b>	<b>Turbine Blades</b>
<b>Slurry Pump Sleeves</b>	<b>Valve Spindles</b>
<b>Pump Shafts</b>	<b>Valve Cones</b>
<b>Guide Vanes</b>	

## Wire & Cable Industry

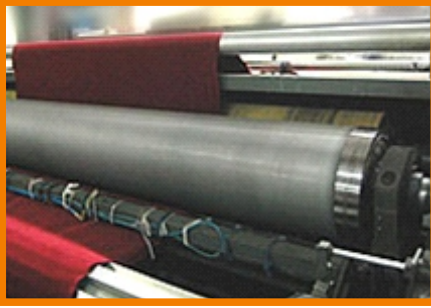


The high hardness wires when subjected to drawing or size reduction will cause the tools which are instrumental in their production like wire drawing drums and pulleys subjected to severe sliding wear and cutting load on the surface. Hence these surfaces have to be protected from high sliding wear resistance. Normal hardened metallic surfaces cannot withstand the stress & cutting wear of the high speed wires over even for a short period of time, hence hard face coatings acts as an excellent barrier for wear and thus enhance life and tool productivity.

### Components

<b>Step Cone Pulleys</b>	<b>Wire drawing Rings</b>
<b>Wire Drawing Drums</b>	<b>Dancer Pulleys</b>
<b>Guide Rollers &amp; Guide Pulleys</b>	<b>Diversion Pulleys etc.</b>

## Textile Industry



Very fine cutting wear is pronounced in the Textile Industry as kilometers of fibrous material pass through metallic components. The components should have very low coefficient of friction to prevent easy flow of fibers and prevent breakages. Compaction Rollers in Fabric (100% cotton knitted fabric) compaction and shrinkage / pressing of fabric in lengthwise direction. Open width and tubular compacting machines use coated rollers.

### Components

Compaction Rollers

Thread Guides

Godet & Draw Rolls

Rotary

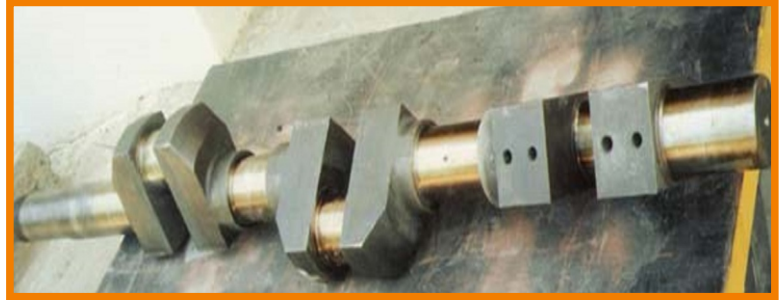
Separate Rolls

Storage & Friction Disks

Finish Applicators

## Automotive Industry

For heavy duty vehicles and for vehicles used in highly abrasive atmosphere thermal spray coatings act as an excellent wear resistant barrier for longer life and performance enhancement at high speeds and heavy load conditions.



### Components

Worm Shafts

Aluminium Alloy Wheel Flange Hub

Piston Shafts

Connecting Rod

Piston Rings

Cam Shaft Etc.

## Pump & Valve Industry

Various sleeves and shafts and the pump used in slurry conditions are subjected to high erosive wear and cannot withstand the conditions even for a few months. These components are thermal spray coated to extend life and withstand the application.

Rotary air lock Valves used in abrasive media require very hard uniform coatings to maintain the air gap in the valve for effective function (prevent leak)

### Component

Slurry Pump Sleeves And Pump Housing

Rotary Airlock Valve Systems

Sleeves And Shafts In Abrasive And Corrosive Applications.



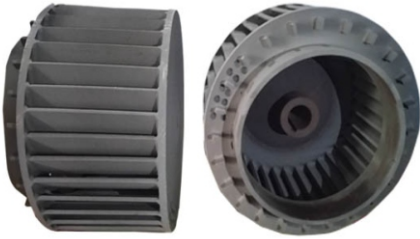
## Petrochemical & Pharma Industry

Chemical corrosion acts as a main impediment for components used in this industry. Various components manufactured with highly alloyed materials are expensive for these applications and hence thermally coated high corrosion resistant coating seems as a potential alternative for cost cutting and life enhancement.

### Components

**Sleeves & shafts (other rotating parts) used in corrosive atmosphere, piston rods etc.**

## Abrasive Manufacturing Industry



The abrasive sieves manufacturing industry use impellers for exiting the abrasive materials after crushing and these impellers vanes are subjected to severe wear. Thermally sprayed hard coating (even over mild steel) enhances the performance & the life of impeller and result in huge cost savings.

### Components

**Impellers and shafts.**

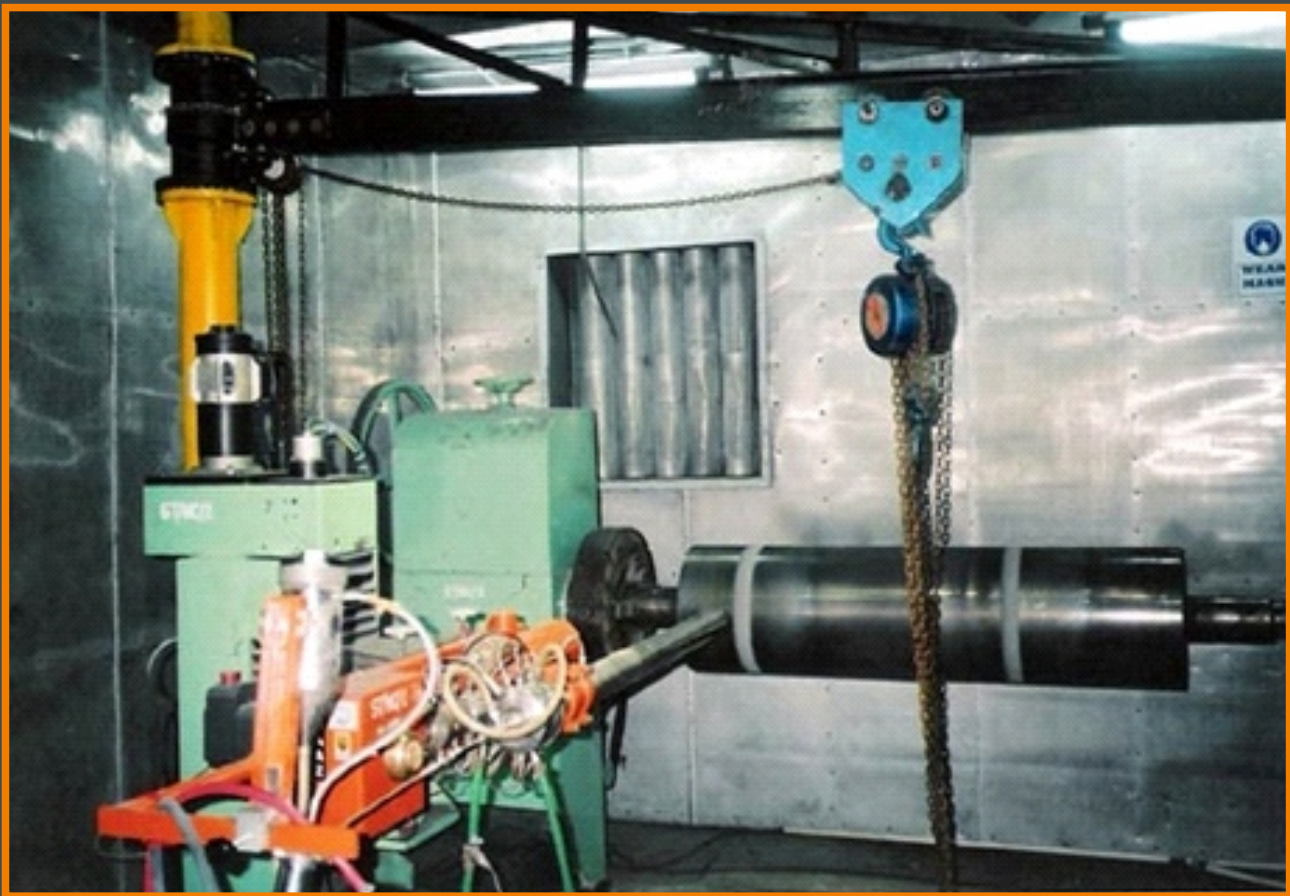
## Product Handling Facilities

“Shafel Tech is equipped with state of the art facilities with excellent modern instruments to analyze the coated component quality & thickness. And has facility to handle heavy jobs with upto 1.5 meter diameter & 3 meter length. With state of the art CNC manipulation for Detonation Gun coatings & Robotic manipulation for HVOF coatings, any complicated dimension product can be coated with high accuracy & consistent quality.

- 👍 Coating Component size upto to 1.5 diameter & 3 Meter length
- 👍 Cylindrical Roller Grinding facility upto 700 mm diameter & 2.5 meter length
- 👍 Cylindrical Grinding – 250 mm diameter & 300 mm length
- 👍 Lathe Machine – 700 mm diameter & upto 3.2 Meter Length
- 👍 Lathe Machine – 250 mm diameter & upto 2.5 Meter Length.
- 👍 CNC Manipulation for D-GUN system
- 👍 7 axis Robot 25kg payload and 2 Meter axis for HVOF system



"Detonation Spray Coating Technology  
Highest Bond Strength with lowest Substrate Temp."



# SHAFEL TECH

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