



SUPERIOR  
SHOT PEENING & COATINGS  
INTERNATIONAL

# PREMIUM SHOT PEENING & COATING SERVICES

24/7 SERVICE WORLDWIDE



SHOT PEENING | ULTRASONIC PEENING | R&D | THERMAL SPRAY  
METALLURGICAL LAB | POWDER COATINGS | PHOSPHATE COATINGS  
XYLAN & EVER-SLICK COATINGS | FLUOROPOLYMER COATING

HOUSTON, TEXAS



CLEVELAND, TEXAS



CHANGZHOU, CHINA



AT SUPERIOR SHOT PEENING & COATINGS  
our customers always receive personalized service and  
never get a telephone recording; real people answer the  
telephone 24 hours a day, 7 days a week.

# ABOUT



In 1990, Superior Shot Peening & Coatings, Inc. was founded on the basis of a “Better Idea”. The founders, Albert Johnson and Jack Blasingame, were working in the surface preparation industry. They saw a need for a better approach and an opportunity for a company that could better serve the surface preparation requirements of Houston industries by providing superior quality a “One -Stop Shop with 24-Hour Turnaround”.

As industries have become more global in their businesses and sourcing, quality services on a fast turnaround basis became a requirement on a global basis. In response to these requirements, Superior Shot Peening & Coatings has complete processing facilities in Changzhou China, Cleveland, TX, a joint venture in Singapore, and an additional facility in Houston, TX. Additionally, there are ongoing discussions with potential global partners, and Superior continues to add new processes and technologies as required and requested by the customer base.

Superior’s facility on 30 acres of land in Cleveland, TX, includes new robotic facilities for thermal spray, a state of the art grinding facility, and new automated peening equipment. All of these increase the ability of Superior

to meet their customers’ ever increasing requirements for more precision work to meet the challenges of extended component life.

At the core of Superior Shot Peening & Coatings are the people. The staff of Superior Shot Peening & Coatings boasts well over 100 years of collective experience in the metal enhancement industry. The senior partners have been meticulous in their selection of technical personnel and key people in the thermal spray and metalizing, peening, and coatings departments that all have over 20 years of experience in their fields.

The depth of education and experience at Superior allows for complete consultation in all fields with customers who bring in new applications for the various processes. If an existing process does not exactly fit, the staff and technicians have the ability to customize processes for particular applications.

All of this makes Superior Shot Peening & Coatings is the only 24/7 One-Stop Shop in the metal enhancement industry, while still remaining small enough and flexible enough to handle their customers’ biggest jobs and ever changing requirements.



# COATINGS

Superior Shot Peening & Coatings provides several options for thermal spray coatings. Depending on your requirements, we will work with you to provide the best process for your work. In their new facility, Superior has added multiple robots to assure the most accurate, uniform, and repeatable coatings that can be achieved.

## THERMAL SPRAY COATINGS

### >> HVOF | HIGH VELOCITY OXYGEN FUEL

When high density (less than 1% porosity) protective metallic coatings are required, we provide the option of HVOF. We recently added the the latest Thermal Spray System that provides coatings with higher thicknesses, lower coating stresses, and overall higher coating quality that the traditional HVOF equipment. This is in addition to multiple styles of thermal spray systems from global manufacturers, and gives Superior the flexibility and capability to provide the best match for any given coating system.

Typical applications use tungsten carbide as a replacement for hard chrome due to the technically superior bond strength, density, and abrasion resistance. Also, Inconel, stainless, molybdenum, all tungsten carbide alloys, chromium carbides and many more to meet the requirements of high temperature, abrasion, and corrosion resistance are available. Our experienced staff will work with you to select the proper coating for your application.

### >> PLASMA SPRAY

Plasma spray is used primarily in the area of ceramics for thermal barrier coatings. These are prevalent in aircraft and land based turbines where higher temperature barriers are required. Many other applications other than thermal barrier protection require plasma spray, and we will work with you to provide the optimum material for thermal, abrasion, and corrosion protection.

### >> METALIZING | TWIN ARC SPRAY AND COMBUSTION

When the corrosive resistance of aluminum and zinc are required, metalizing is typically used. Also, metalizing is used for restoration of dimensions on miss-machined or worn parts. Typically these coatings are thicker than either plasma or HVOF, and use distinctly different alloys.

### >> SPRAY AND FUSE

Spray and fuse involves metallic coatings applied by combustion, and then fused in either vacuum furnaces or high induction heat. This provides a superior metallurgical bond as it actually fuses into the substrate. Typically used when spalling cannot be tolerated and zero porosity is required. The Colmonoy Coating is the latest addition to the complete line-up of coating that Superior has available.





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has added multiple robots to assure the most accurate,  
uniform, and repeatable coatings that can be achieved.

# COATINGS

## >> SPECIAL REFURBISHING PROCESSES

Many times, it is economically more feasible to restore a very high cost component. Typically these are components of high precision and are in abrasive and/or corrosive environments. Typical parts would be worn tools and tooling, rotating and reciprocating parts, housings and impellers, fans turbine components, mandrels, pump shaft, various drive shafts, and bearing journals on a wide assortment of parts. These parts can be refurbished by using any one of the Thermal Spray Processes employed by Superior. The ultimate application process will be determined by the alloy required, and the environment in which the refurbished part will run.

## >> GRINDING AND HONING

Many of the metallic thermally applied coating processes that Superior Shot Peening & Coating provides requires pre-grinding of the surfaces. This can be done by an undercut to allow for the build up of the coatings to final dimensions, or it can be to remove old coatings for re-coating in a refurbishing process.

Additionally, when the coatings are applied, a finish grind is required to bring the part into final dimensional tolerances. Also. some parts require a very fine micro-inch finish to meet the performance criteria of a given part.

Superior Shot Peening & Coating has a full compliment of grinders and honing units in-house to complete all of these requirements in an environmentally controlled building to assure accuracy.

## >> HVOF

High-Velocity Air-Fuel Spraying (HVOF) is a process for deposition of high-quality coatings of metals, alloys, cemented carbides, and borides onto metallic surfaces.

Coating material in a form of pre-alloyed or composite powder is fed into a spray gun. The gun combusts compressed air and fuel gas (propane, propylene, natural gas, etc.) generating high-velocity jet of combustion products. In the jet, the spray powder is heated and accelerated and, when impacting a work piece (substrate), forms a coating.

Since the combustion temperature of air-fuel mixtures is relatively low, it is possible to gradually and precisely heat the spray powder to the desired temperature, preferably a few degrees below the material's melting point. performing deposition of coatings in a "solid particle" spray mode.

The HVOF gun accelerates the powder to a very high velocity, in the range of 4,000 feet/sec., even for such heavy particles as tungsten carbide. This is essential for producing dense and well-bonded coatings.

Precise temperature control of the spray material near the melting point and high impact velocities are the distinguished characteristics of the HVOF coating deposition process.

# COATINGS

## ORGANIC COATINGS

Superior Shot Peening & Coatings can provide a very broad base of organic coatings to meet a variety of requirements, including corrosion, abrasion, lubricity, and cosmetics. Superior also has a NACE Certified Coating Inspector on staff.

## FLUOROPOLYMER COATING

Superior Shot Peening & Coatings' fluoropolymer coating system used for non-stick and sliding properties at higher temperatures with added surface abrasion resistance, corrosive resistance, and high chemical resistance. Our system is used to help prevent plastic or latex debris from melting and plugging the screens of commercial dryer screens, baskets, and tumblers. The types of coating that we currently apply are Teflon, PFA, Halar, Xylan, and Xylar.

The benefits of using this coating system include a low coefficient of friction, excellent sliding properties, non-stick properties for cookware/baking equipment and fluidized piping, a great mechanical bond to their substrates, temperature resistance up to 280 degrees Celsius, and FDA compliance for direct food contact. Additionally, our system improves production processes by reducing maintenance and cleaning operations on equipment, can be applied as low as 0.0005" up to 0.150" depending on the chosen fluoropolymer application, and can be used as a thermal insulation covering.

## XYLAN<sup>®</sup>, MOLY, & EVER-SLIK<sup>®</sup> FLUOROPOLYMER COATINGS

Many times, parts need coatings that will provide lubricity and sometimes corrosion resistance at the same time. Superior Shot Peening & Coatings provides all of the industry standard Fluoropolymer-type coatings for these applications, such as Xylan<sup>®</sup>, Moly, Ever-Slik<sup>®</sup>, and others as required by customers.

## CORROSION AND ELECTRICAL INSULATION

Superior Shot Peening & Coatings provides a selection of coatings designed specifically for corrosion protection and electrical insulation.

## HIGH BAKE PHENOLICS

We have a selection of high bake phenolics that are resistant to virtually all forms of environmental and chemical corrosion. The materials are spray on coatings, and one product has flexible properties which is unique to phenolics. The flexible properties make it more suitable to withstand flexing from expansion and contraction such as in large storage vessels where normal phenolic systems tend to crack. We also have the ability to add a metallic additive that greatly enhances the abrasion resistance of the final coating.

# COATINGS

## PVC COATINGS

Superior Shot Peening & Coatings provides both liquid and powder sprayed systems of PVC. These coatings are used for electrical insulation as well as corrosion resistance. These are true coatings, not pull-over molds, with extremely high bond strength that will not pull off easily. and as such, tears in the material will not compromise the coating integrity. Also PVC has an extremely high dielectric constant to resist high voltage break down.

## URETHANE COATINGS

Superior Shot Peening & Coatings is an experienced applicator of virtually all liquid urethane and epoxy coating systems with access to a broad variety of materials that encompass various colors, physical properties, and applications. Superior has several ovens of varying sizes to accommodate curing of the smallest parts up to parts 40 feet long to facilitate complete heat curing when required.

## PHOSPHATE COATINGS

Phosphate coating is temporary corrosion resistant coating. It can also be used as a corrosion resistant base for subsequent coating applications which produces components with a gray or gray-blue, non-metallic, non-conductive, velvety finish. Superior Shot Peening & Coatings offers both zinc and manganese phosphate coatings, and can coat parts ranging in size from very small up to 25 feet in length. For parts larger than this, a special cascade operation can be done.

## POWDER COATINGS

Superior Shot Peening & Coatings can apply essentially any powder coating system available in industry. These include coating systems for anti-corrosion, anti-erosion, wear and abrasion resistance, and insulation. The systems include urethanes, epoxies, polyesters, and hybrids that are used across all industries including marine, aerospace, nuclear, agricultural, food & beverage, medical, military, and oil and gas, and we can accommodate curing pieces of to 40 feet in length.

YOUR 24/7  
ONE-STOP SHOP FOR  
PEENING & COATING







## SUPERIOR SHOT PEENING & COATINGS

has a robotic facility for thermal spray, a state of the art grinding facility, and new automated peening equipment.

# FINISHING SERVICES

## SHOT PEENING

Superior Shot Peening & Coatings has peened almost every commercial metal known to man, including exotic metals such as Hastelloy, Inconel, and various Titanium Alloys.

Our shop is equipped with various peening equipment set-ups; from the most basic manual cabinets and enclosures to the most highly automated pie controlled systems. This allows us to address every peening application from the most basic parts up to the most sophisticated aeronautical and marine components.

In addition to the broad range of equipment, we stock virtually all types of hardnesses and sizes of peening abrasives giving us the ability to provide the broadest possible range of peening specifications.

In addition to our in-house capabilities, we have also performed numerous field peening jobs that include nuclear submarine components at harbor side, boiler tubes at power plants, aircraft structural components and landing gears at airfields and airports, and pneumatic conveying pipe systems in locations at various chemical and plastic manufacturers' sites; all while maintaining the same critical quality control specifications that we do in-house.

The Superior Shot Peening & Coatings team has always taken a "Can Do" attitude to essentially all customer requests. This approach has earned us the reputation of taking virtually any task, any where in the world, and producing the highest quality work in the shortest period of time.





## SUPERIOR SHOT PEENING & COATINGS

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## SUPERIOR SHOT PEENING & COATINGS

stocks a complete line of peening and abrasives such as steel, ceramic, glass, aluminum oxide, black beauty, and stainless steel.

# FINISHING SERVICES

## ULTRASONIC SHOT PEENING

Ultrasonic shot peening (USP) is a sophisticated surface treatment used to improve the mechanical and corrosion-resistant properties of metals, particularly in components subjected to high levels of stress and strain. Shots are propelled at the surface of a part using ultrasonic waves, creating a compressed layer.

Ultrasonic peening provides fatigue life enhancement unparalleled by any other technology. The fatigue life enhancement is achieved through depths of compression 2.5 to 3.0mm (over 5 times the maximum obtainable through shot peening) below the surface, while relieving tensile stresses to depths of 12 to 15mm below the surface. This results in a component with a very deep level of compression with a favorable uniform stress profile.

The end result of UIT treatment is a component that has fatigue life improvement of 250% to 500% – in many instances 5 times that of a peened component – while increasing the corrosion resistance due to the work hardening of the component surface without loss of ductility that is associated with “over-peening.”

### >> UIT-1005 SYSTEM

We utilize the powerful UIT-1005 peening system. The system can deliver strong ultrasonic energy to components and weldments, mitigating harmful tensile stresses while imparting beneficial residual compressive stresses.

- Increases the fatigue strength and life of assets.
- Delivers a portable, repeatable, and proven ultrasonic process.
- Reduces set-up time and increases reliability.

### >> INDUSTRIAL APPLICATION OF UIT PEENING SYSTEM

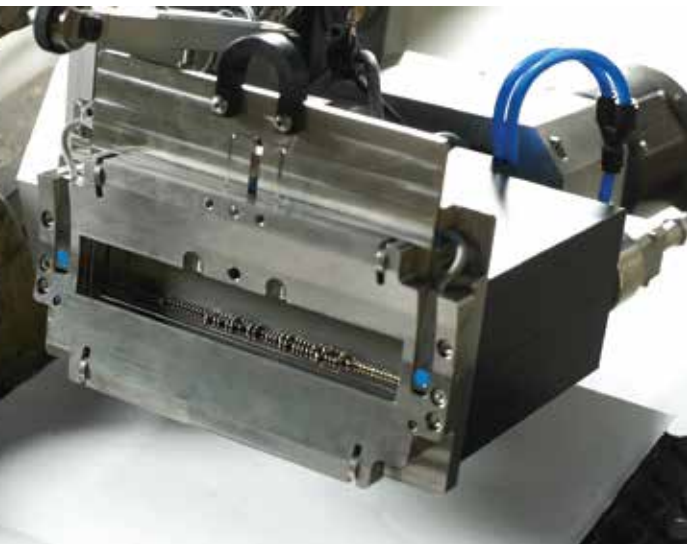
UIT can be successfully used in the following settings:

- Bridge welds
- High light pole and traffic sign masts
- Stainless steel tank welds for prevention of stress corrosion
- Ship hull and deck welds
- Stationary power and locomotive crankshafts
- Turbine bases
- Vibratory deck weldments
- Submarine hull welds
- Oil field pump components
- Many more components





# FINISHING SERVICES



## ULTRASONIC SHOT PEENING

### >> METAL USES

While UIT is not needed in all components, it will provide the maximum fatigue life extension for metallic components of virtually all metallurgies, including:

- Carbon steels
- High-strength steels (> 100 Ksi yield)
- Brass
- Bronze
- Titanium (6/4, 6/2/4/2)
- Aluminums
- Hastelloy
- Inconel
- Stainless steel

### >> SYSTEM FEATURES

Operating at the industry's highest ultrasonic frequency, the UIT-1005 System offers robust, portable ultrasonic technology for industrial purposes.

- Includes robust hard case for enhanced portability and durability.
- Provides easy-to-use adjustments using a touch screen.
- Easily monitors, collects, stores, and downloads information



# FINISHING SERVICES

## ULTRASONIC SHOT PEENING

### >> UIT-1005 SYSTEM SPECIFICATIONS

GENERATOR	Nominal Frequency	27 kilohertz
	Rated Power Output	800 Watts
	Voltage Input	110 Volts
	Current Input	15 Amps
	Frequency Input	60 hertz (50Hz available)
	Amplitude	Programmable 10-30 microns
	Weight	52 pounds
	Dimensions	12.5" x 10" x 22.5" (HxWxL)
	Nominal Frequency	27 kilohertz
HAND TOOL	Weight	6 pounds
	Length	21 inches
	Diameter	3 inches
WATER COOLER	Weight (empty)	6 pounds
	Voltage Input	110 Volts
	Frequency Input	60 hertz
	Dimensions	25" x 9.25" x. 9.25" (LxWxH)

### >> HAND TOOL

Operating at the industry's highest ultrasonic frequency, the UIT-1005 System offers robust, portable ultrasonic technology for industrial purposes.

- Increases the life of repairs from months to years.
- Relieves welding stress.
- Helps prevent cracking from fatigue and stress

### >> ADVANTAGES OF ULTRASONIC PEENING

The UIT system can be used for non-thermal stress relief of weldments and distortion control. The peening process can be applied as an in-process or post-process procedure.

- Improves fatigue strength and lifespan.
- Mitigates stress corrosion cracking (SCC).
- Easy to mobilize to remote job sites.
- Enhances new materials or refurbishes old materials.

### >> ULTRASONIC CERTIFICATIONS

The UIT peening process has been certified by numerous third-party organizations. Publications and professionals from around the world have endorsed the UIT peening process.

- Certified by the American Bureau of Shipping, Det Norske Veritas, and Lloyd's of London.
- Endorsed by the University of Texas, Lehigh University, and more.

# FINISHING SERVICES

## PASSIVATION

Freshly machined stainless steels have active surfaces that are prone to oxidation. To passify the surface, Superior Shot Peening & Coatings applies a chemical treatment to prevent the surface from oxidizing. The process clears micro-burrs, leaving a very finely etched surface that has a very thin film of Cr<sub>2</sub>O<sub>4</sub> that prevents further oxidation. Our capacity for this process ranges from the smallest parts to U.S. Army tanks.

## CUSTOM SURFACE PREPARATION ABRASIVE BLASTING

Superior Shot Peening & Coatings provides a broad spectrum of surface preparation blasting options. Whether it is for pre-paint, pre-thermal spray, pre-powder coat, your antique car frame, or your grandmother's antique iron bed, we have a system that will provide the maximum cleanliness and anchor pattern for the desired final coating without damaging your part.

Superior stocks a complete line of abrasives of all types, such as steel, ceramic, glass, aluminum oxide, black beauty, and stainless steel. These are stocked in many sizes and hardnesses to give the customer the best surface for the application.



# ADDITIONAL SERVICES

## NON-DESTRUCTIVE TESTING

At Superior Shot Peening & Coatings, we pride ourselves on our ability to help our customers maintain the highest standard in NDT. We have invested our many hours of experience in designing a fully functional NDT department with equipment for all size parts, ASNT SNT-TC-1a Level II certified inspectors and a certified ANST ACCP Level III. We perform both wet and dry Magnetic Particle Testing (MPI) as well as Liquid Penetrant Inspection (LPI) and Fluorescent Penetrant Inspection (FPI). We also offer on-site inspections. Our capabilities and expertise make us the perfect choice for your NDT needs.

## METALLURGICAL LAB

To ensure proper quality, composition, and deposition of metallurgical coatings, Superior Shot Peening & Coatings has a complete in-house lab to fully analyze critical properties of applied coatings. This allows for immediate quality checks to ensure the customer of the highest quality.

We utilize the latest technology to measure and test the hardness of materials and coatings. Specifically, we use innovative hardness testers in our lab that allow us to measure Rockwell and Vickers hardness. All equipment is fully compliant with ASTM standards, creating complete confidence in the testing results.

## RESEARCH AND DEVELOPMENT

With the staff of scientists at Superior Shot Peening & Coatings, we have the ability to provide customers with complete R&D on new projects; our technical staff can discuss the customers' desired requirements, and then can implement a full R&D program to fully establish new materials, new application techniques, or totally new systems to address metallurgical and chemical issues.

## CONSULTING

Superior Shot Peening & Coatings offers complete consulting services to assist customers in analyzing and diagnosing problems and finding solutions. The technical staff at Superior Shot Peening & Coatings has extensive experience in fatigue life extension, abrasion, and corrosion resistance; essentially all facets of improving the life of any metallic component. This is accomplished in-house and at the customers' facilities.

## TRAINING SCHOOLS

Superior Shot Peening & Coatings provides training in all aspects of our treatments; particularly in the areas of coatings and shot peening. We are a certified trainer for MFN, an international organization focused on metal finishing and peening. In this capacity, we teach three levels of shot peening that can provide the students with certificates that are recognized by the FAA and NADCAP. We can perform this training at our own facilities as well at customer facilities. We also have prepared custom schools for customers' specific applications.

# ADDITIONAL SERVICES

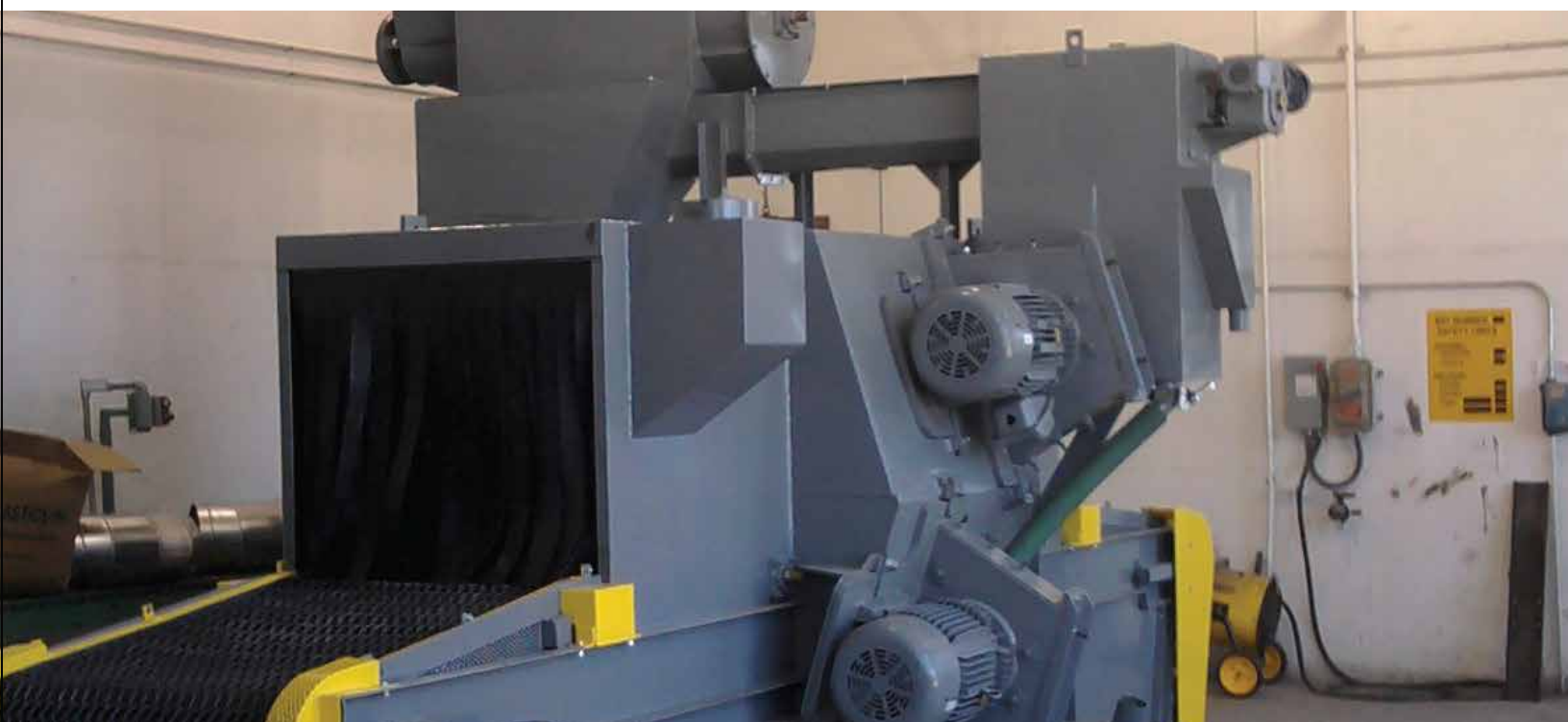
## WORLDWIDE FIELD SERVICE

Many times, people require the services provided by Superior Shot Peening & Coatings, but component size, work schedules, and shipping requirements creates a need to perform the services at the customer facility. Our experienced international field crews can travel anywhere in the world with our portable equipment and can provide virtually every process that we do in our own facilities.

Field crews are often dispatched on only a few hours notice, to provide the same high level of quality and service that is produced in our facilities, but at the customer site. We have extensive experience in providing this type of service to the aerospace, chemical, oil & gas, aircraft, and food processing industries.

## CUSTOM EQUIPMENT FABRICATION

Superior Shot Peening & Coatings manufactures its own line of portable and stationary shot peening and abrasive blasting equipment, which is suitable for most applications. Our line of self-contained blast and peening cabinets, as well as other equipment, can be designed and/or modified to meet the customer's particular requirements and will always meet mandated safety and environmental requirements. Extensive training in the use and maintenance is provided by our experienced technicians at no additional cost. Other equipment such as stationary presses and work handling conveyor systems are also manufactured at our Houston, Texas facility.





[SUPERIORSHOTPEENING.COM](http://SUPERIORSHOTPEENING.COM)

**YOU TELL US  
WHAT YOU NEED;  
WE WILL BUILD IT!**



HOUSTON, TEXAS

|

CLEVELAND, TEXAS

|

CHANGZHOU, CHINA



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