

ULTRASONIC SHOT PEENING FOR THE AUTOMOTIVE INDUSTRY

HOW IT WORKS?

Unlike the conventional shot peening which uses air pressure or wheel blasting, **Ultrasonic Shot Peening** (**USP**) activated with the **STRESSONIC®** Technology uses the ultrasonic vibration at 20KHz varying the amplitude to throw medias on the part.



Example of customized floor machine for USP shaft treatment and a 3D view during USP process

WHY SHOT PEENING?

Shot Peening is a surface enhancement of metallic components that positively affects their fatigue and corrosion resistance, increasing significantly their service life.

Fatigue

Initiation and growth of cracks prevention

Stress Corrosion Cracking

Phenomenon reduction

Wear

Lifetime extension



Example of Residual Stress Profiles comparison on Gears before peening and after STRESSONIC[®] peening (Steel alloy)



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PROVEN APPLICATIONS

Crankshaft, Camshaft, Connec-

ting rod, Cylinder Head, Injector,

Steering rack, Drive shaft, tripod, Turbochargers (turbo wheel;

Engine

Compressor wheel)

Transmission

Gears (Output shaft, Ring gear, Pinions)

But Also... Suspension, Chassis, Bearings



SAFE AND GREEN LEAN MANUFACTURING SOLUTION

Industrial advantages	Simple impl (no need fo	ementation r masking)	
Reduced ATEX/ Dust Explosion risk			Clean, Low noise & Environment friendly
Small footprint - Space saving in customer's workshop		Low Media & Energy consumption, Contamination	

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- Process advantages
- Precision and control
- Repeatability
- Treatment homogeneity, even for complex geometries (ex. Bore, dovetail...)
- High quality surface finish
- ALMEN Intensities from 4N (F10N) to 10C (F25C).
- Materials: Steel, Aluminum, Inconel, Cast iron, Titanium, Ceramics

COMPLETE AND CUSTOMIZED SET OF SOLUTIONS

- Material Characterization expertise (X-Ray Diffraction, Roughness, Hardness & Micro-Hardness)
- Engineering studies (Feasibility, Material, STRESSONIC[®] process)
- Design and manufacturing of specific tooling, portative machines and customized floor machines (from semi-automatized to fully robotized systems)
- Workshop Services at SONATS, or Worldwide In-situ Services
- Distribution of consumables and control accessories for Shot Peening operations
- Specific training sessions and workshops: Shot Peening & Flapper Peening (FAA material)