

INNOVATORS IN
TECHNOLOGY

技术的创新者



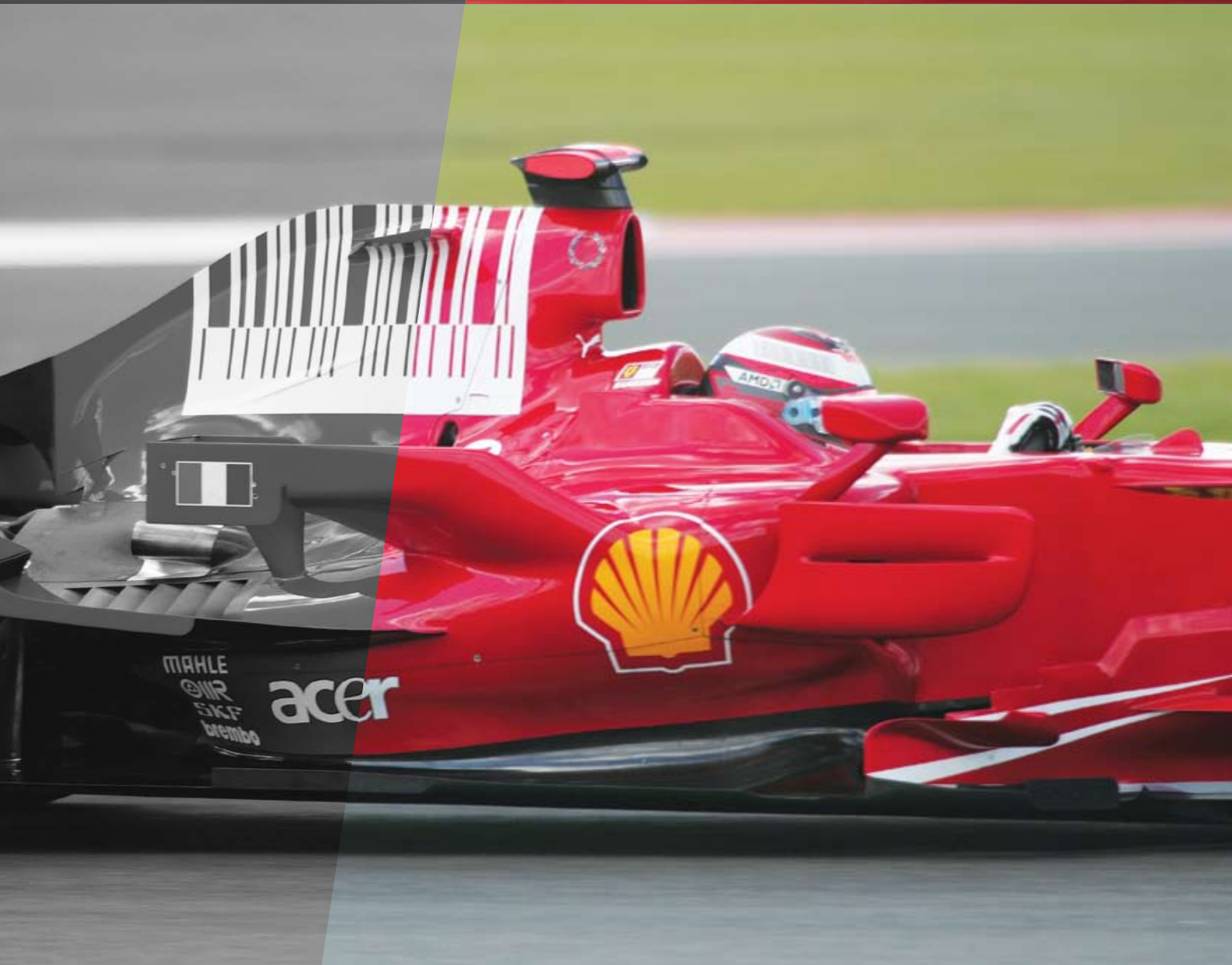
**Metal Improvement
Company**

Subsidiary of Curtiss-Wright Corporation

金属改进公司

Automotive applications

汽车领域里的应用

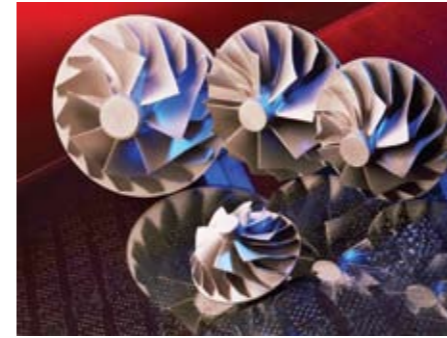


Enhancing the performance of metals
and materials

改善零件性能 延长零件寿命

Metal Improvement Company
is a subsidiary of Curtiss-Wright
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MIC是Curtiss-Wright集团旗
下的子公司



The automotive industry

The automotive industry demands cost effective, high performance materials capable of withstanding high and variable loads. Surface treatments can extend the performance characteristics by protecting the surface from operating damage and cyclic loads.

CONTROLLED SHOT PEENING

Controlled shot peening is generally a cold working process where the component's surface is bombarded with small spherical particles to yield the base material, relieving prior manufacturing stresses and inducing residual compressive stresses tailored to suit the base material and application. The applied stress is reduced, enabling better dynamic performance and damage tolerance.

SUPERFINISHING

Superfinishing of components is critical in applications of metal to metal contact such as gears and bearings. Generally applied after the controlled shot peening process to remove surface asperities resulting in reduced wear, macro and/or micro-pitting, noise and operating temperatures.

SHOT PEEN FORMING

Peen forming is a method of correcting complex parts distorted during machining and/or heat treatment. This dieless forming process is ideal for correcting the form of shafts or welded structures.

LASER PEENING

Laser peening can introduce residual compressive stresses in all metallic materials up to 5 to 10 times deeper than other conventional cold working techniques with virtually no surface damage. This clean and extremely controllable process is a production tool of significant benefit where product performance is critical.



汽车工业

汽车工业对材料的要求是成本低,并能够在高的交变负载下保持良好性能。借助保护表面免遭运行时循环负载的损坏,表面处理能够改善零件的性能

精控喷丸

精控喷丸是一种冷处理工艺,工件表面在小的圆形球体的打击下产生屈服,在释放原有的残余应力同时,根据所处理的材料不同产生一定残余挤压应力。这种积压应力能够降低工作应力,获得较好的动力特性。

超精表面处理

对像齿轮和轴承这样一些相互摩擦的零件,对其表面进行超精处理十分重要。这种处理通常在喷丸后进行。经处理的零件表面微观粗糙度得到改善,从而可以降低磨损,微划伤,噪音及工作温度。

喷丸成型

喷丸成型能有效矫正机加工和热处理过程中一些复杂零件的变形。这种无模成型工



绝大多数汽车工业所使用的金属材料,不管是发动机、悬挂机构,还是传动产品,均采用表面处理技术满足其材料的性能指标。

这些处理已经经历了各种各样的实验室和现场测试,以保证在下列材料失效模式下的可靠性:

疲劳 - 借助于植入相当程度的挤压应力可以有效控制疲劳裂纹的产生及扩展。

微磨损 - 微磨损会导致疲劳破坏,合适的涂料或喷丸能改善零件的表面接触和在表面产生挤压应力,从而大大降低微磨损的可能。

咬合 - 涂料的保护层或通过改变表面材料特性能有效防止相近零件表面的咬合。

应力腐蚀裂纹 - 减少表面拉伸应力或使之降低到临界点以下将能消除应力腐蚀裂纹的产生。

腐蚀 - 施加涂料保护,加上在疲劳发生的表面植入积压应力是将腐蚀的影响降低到最低限度的必不可少的手段。

磨损 - 借助降低摩擦和增加相互接触零件的表面硬度均可以减轻磨损。





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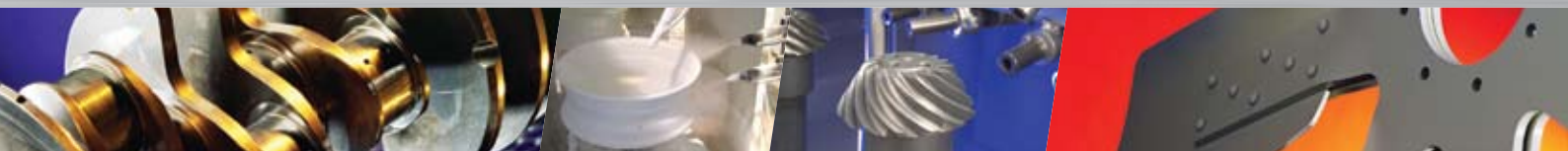
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SHOT PEENING ■ SHOT PEEN FORMING ■ LASER PEENING ■ COATINGS ■ HEAT TREATMENT

喷丸 ■ 喷丸成形 ■ 激光喷丸 ■ 喷涂 ■ 热处理