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Shock wave runs through finishing industry.

A high temperature shock wave is affecting the finishing industry which will have to adapt. This 20 milli-second blast wave only affects burrs, flash, contaminants and loose particles. The reason why the industry is reeling is not so much the physical effects of this small explosion but the fact that the majority of the industry has overlooked its economic value for the last 40 years.

Thermal deburring or TEM (Thermal Energy Method) to give it its full title, developed in the US some 40 years ago and is widely accepted in the States but is little known in the UK. All that is about to change though, as it is now being actively promoted as a quality, cost effective, fast means of deburring.

Deburring is often seen only as a cost centre and associated with negative connotations of poor engineering and lax machining. That has now become a is a thing of the past. The positive aspects of thermal deburring are that it removes burrs (especially internal and hard-to-reach ones), sharpness, particles and flash, and is a good preparation for heat treatment as it removes contaminants and stop off. Resolving assembly problems and jammed mechanisms, eliminating damaged rubber seals, clogged filters and ports, and avoiding component failure due to burrs can now be regarded as a value added process. Using thermal deburring you can guarantee consistent high quality - repeated between components, throughout batches and across runs.

Thermal deburring happens in a sealed chamber when natural gas and oxygen is pumped in under pressure. Being a gas, every surface – external and internal – is surrounded with this volatile mix. A spark plug detonates it and the resultant high temperature shock wave (up to 3,500ºC) reaches every burr and particle. The large surface area to mass ratio of these pieces means that their ignition temperature is surpassed and they burst into flame and oxidise. This burn is supported by the oxygen until the flame reaches the body of the component when the heat dissipates safely into the bulk of the item and the temperature plummets to a maximum 150ºC. The resultant oxide is deposited as a powder on the surface of the component. This can be easily washed off or used as an aid in further surface finishing processes. In fact the thermal deburring process is also used to remove contaminants and stop offs.

So whether for deburring, or as part of the surface finish process, or both. This shock wave is set to continue through the industry.