

Solving your deburring problems...

REMOVING...

- inaccessible or missed internal burrs and whiskers
- residual particles and metallic contaminants
- awkward flash

ELIMINATING...

- time consuming deburring
- human error/operator handling difficulties
- assembly difficulties due to burrs
- failure during service attributed to burrs
- ineffectual current deburring or flash removal operations

Thermal deburring solves ALL these issues in a 'flash'

WHY USE THERMAL DEBURRING?

The Thermal Energy Method of deburring is a unique process where all potentially loose burrs, flash, whiskers, and unwanted particles are guaranteed to be completely removed. A gas/oxygen mixture surrounding the item is ignited and the resulting heat wave causes the metal burrs to surpass their ignition temperature and oxidise.

ALL INACCESSIBLE BURRS AND PARTICLES REMOVED — NONE MISSED — GUARANTEED

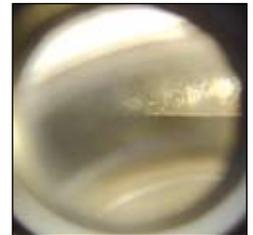
The advantage of a gaseous energy carrier is that it spreads evenly over the whole component, penetrates hollows, blind bores and awkward to reach cross holes, and surrounds every potential loose part. Thermal deburring is the only process that guarantees the removal of all burrs and debris for demanding safety critical applications. It is a repeatable and consistent process. There is no abrasive medium to degrade enabling consistency across the entire component, during the run and between batches.

SIMPLE PROCESS

The process itself could not be more simple. The natural gas and oxygen rich mixture is ignited. The temperature increases to a maximum 3,500°C for around 20 milliseconds. The small amount of heat produced has a minimal effect on the components metallurgy, however, material that has a large surface area to mass ratio (ie any burr) is unable to dissipate the heat fast enough, surpasses its ignition temperature and bursts into flames. The 'burn' produces an oxide of the material. When the flame reaches the root of the burr the remaining heat dissipates safely throughout the main bulk of the piece. This process also removes stop-off and with the oxide powder coating aids any subsequent heat treatment. The oxide powder though can be easily removed with a wash.

However the parameters which control the fuel/oxygen mix; the heat generated; the maximum temperature; the resultant pressure and the duration are intensely complex. Achieving the optimum condition though, is possible. It is this computerised control of every factor, and our engineers' years of experience that allows the process to be individually tailored for any component irrespective of material, shape, size or complexity, and for the process to be precisely, and consistently repeated.

PRECISE • REPEATABLE • CONSISTENT



ADVANTAGES

- unique ability to remove ALL potentially loose burrs
- no metal particle or contaminants left
- no burrs missed
- oxidises any burrs that might break off and lodge
- able to reach inaccessible burrs
- no debris left
- any size, shape or complexity of component
- does not damage or score critical surfaces
- does not affect surface of component
- used as a pre-treatment to heat treatment and finishings
- minimal effect on metallurgy
- no damage to threads
- no known evidence of adverse effects
- quick – 20 milliseconds!
- very short lead times/machine set up
- low tool and set up costs
- batch sizes from 1-1,000,000
- low component processing costs

DISADVANTAGES

max size of 250mm diameter and 300mm high.

MATERIALS

all steel, stainless and aluminium specifications, brass, bronze, zinc, etc.

SUITABLE COMPONENTS

turned parts, die castings, precision components, screw machine parts, fittings, valves, tube cut-offs, injectors, manifolds, housings, pumps, gears and pinions...

INDUSTRIES

hydraulic, pneumatic, fluid, offshore, sub-sea, electronics, defense, oil, gas, petro-chemical, food, textile, automotive, medical, pharmaceutical, mould and die...



HISTORY OF TEM

TEM was developed in the USA over 40 years ago in the 1960's by SurfTran (which is now a division of the Extrude Hone Corporation). Within two years of the sale of the first machine the German company Bosch had recognised its worth and started manufacturing them under license for the European market.

TEM usage is prevalent in the States. In the UK machines are usually found in-house on mass production lines where they handle a limited variety of components. However the real benefit of the TEM process is it's versatility, short set up time between runs, low tooling costs (if any), and it's ability to economically handle batches of between 1 and 1,000,000+. It is the perfect deburring method where a variety of components, varying quantities and fast turn around times with guaranteed consistent quality is demanded.

THE COMPANY

Deburring Centre Ltd was formed in 1996 by two experienced TEM engineers who saw thermal deburring as ideally suited to a sub contract service. The company has, over the last 10 years, grown to become the foremost thermal deburring specialists and sub contractors in the UK. Their experience now covers a large number of industries, an extensive range of materials and a huge variation in components – size, types and complexities.

Consistent quality is a fundamental issue for the company who achieved ISO 9001:2000 within its first two years.

Thermal deburring is a proven method, although not widely used or understood. Free sampling is offered to demonstrate TEM's exceptional deburring ability. Samples are returned completely deburred, with a controlled analysis report, normally within 72 hours.

Further information, usage and comparisons can also be downloaded from www.deburr.co.uk.

Contact, Martin Bridges at...



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