

Frequently asked questions.

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What parts can't it deburr?

None. Where gas is used as the energy carrier it is distributed evenly throughout the chamber and workpiece/s. Being a gas (and especially under pressure) no hole is too small to permeate. So every burr, edge, flash and particle is covered.

What is thermal deburring's effect on threads?

The effects are great on threads as it will remove potentially loose metal but not radius/diminish or remove the edge of threads. It also doesn't touch the faces. So a clean, tight, easy fit is obtained.

What is thermal deburring's effect on small holes?

Thermal deburring only works on parts with large surface area to mass ratios ie burrs – not on the surface of the workpiece. Unlike processes with abrasive media no surface erosion takes place so there is no stock loss affecting small holes.

Doesn't the 'explosion' damage the components?

Some nicks, dings and scratches can result with pieces being 'bounced'. Larger 'fist' sized pieces are normally fine. However smaller items and those with seating faces and valuable areas can be easily restrained in a simple, inexpensive fixture.

Do all metals work equally well?

Thermal deburring is excellent on iron, steels, zinc and alloys. The oxide can easily be washed off or utilized in further heat treatment.

Aluminium is also excellent. The surface will need to be finished if its appearance is important.

Stainless steel works well but the effect is less noticeable. Some slight 'bluing' can occur around the sites where the burrs are removed - this is just cosmetic though.

What are its major applications?

Castings, turnings and manifolds are major applications of TEM. Substantial savings are made on hydraulic and pneumatic valve bodies and castings with internal intersections and difficult to reach bores.

Zinc and die castings are deburred and de-flashed at the same time. Carburettor components, automotive lock cylinders, infact many auto parts...

What are its major plus points?

consistently high quality, repeatably obtained
burrs, particles and contaminants guaranteed to be removed
cleans a piece prior to assembly
removes contaminants and stop off
one of the cheapest processes
the fastest process
able to cope equally well with one complex piece or many smaller pieces at the same time
ability to quickly change between varied component runs
very little tooling or set up costs

What are it's major weaknesses?

cannot produce specified radii
doesn't polish surfaces

Can it deburr and de-flash plastics?

Yes. The pressures and temperatures used are much lower and realistically the process is only really considered with large volume parts. It was often used to remove the 'webs' in non woven mesh. Plastics are not easy due to the relatively thick flash and their low melting points. However once a suitable setting is found the results are consistent.

I've heard it's great for ali heat sinks from electronic modules. Is this correct?

Yes

Doesn't TEM's capital cost make it prohibitive?

Although the high capital cost of up to 1/3 million is certainly a damper. TEM is currently the quickest and cheapest method for deburring many workpieces. This is why Deburring Centre Ltd offer a sub-contract service so clients can have the best of both worlds. No up front capital costs but the ability to reap its speed, low costs, versatility and repeatable high quality.

How does it cope with varied angled intersections?

Wonderfully! Unlike radiusing, which works on predetermined intersections. Thermal deburring acts on every edge regardless of position in the piece, orientation, angle or accessibility.

How does it affect small bores?

It doesn't. Since there is no abrasive media the adjoining surfaces experience no change in dimension.

What temperatures do the components reach?

Bodies rarely exceed temperature in excess of 150°C

Can it radius edges?

Unlike AFM where specific intersections are radiused in turn, thermal deburring is non selective and a specified edge radii can't be specified on all edges. As a guide radii can be .05-1.5 for steel and .05-.25 on ali depending on size of burr.

Can it deburr sharp edges?

Yes. Correctly adjusted it can remove burrs and even keep the edges sharp.

Can it get rid of raised edges?

Usually no. The temperature and pressure of the firing can be increased to accommodate a variety of burr size but it regards the raised edge as part of the component's bulk so leaves it untouched. It will deburr the raised edge though and rid them of any potential loose particle. Raised edges either need to be engineered out in manufacture or radiused using another finishing method.