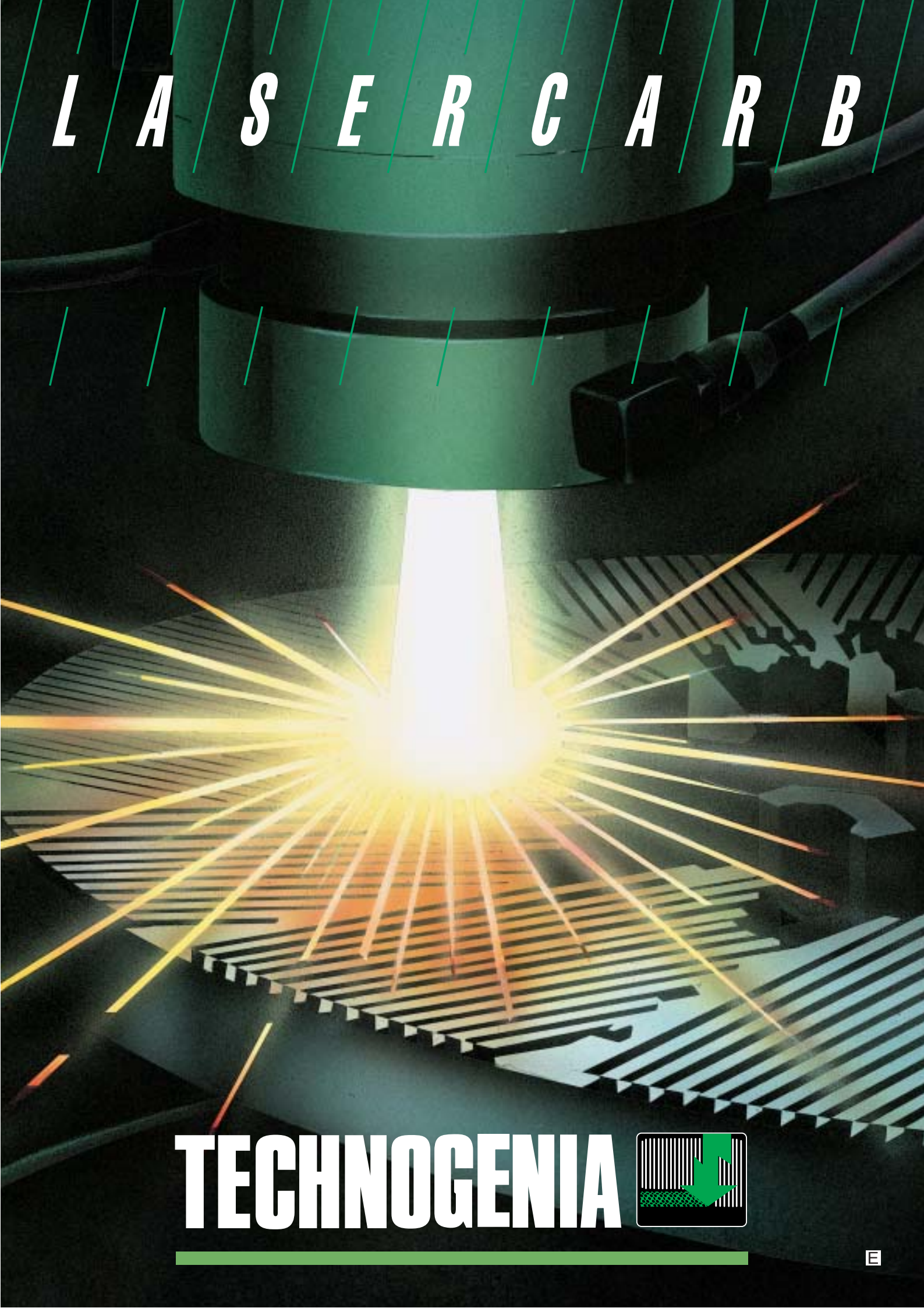
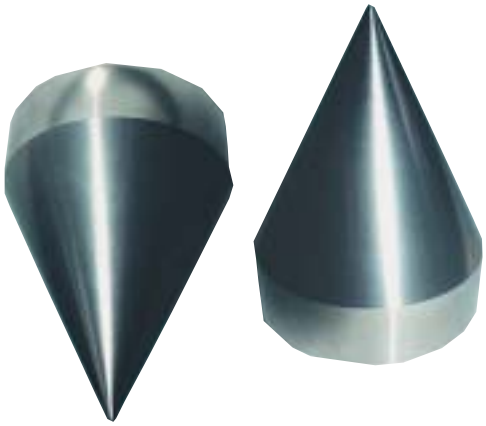

LASERCARB
TECHNOGENIA



LASERCARB®

A Laser hard facing process developed by

TECHNOGENIA®

TECHNOGENIA®'s R & D Departement has developed a new process for hard facing parts subject to wear.

This process, known as **LASERCARB,** uses energy from a laser beam to surface parts exposed to abrasion.

THE LASERCARB HARD FACING PROCESS

A continuous **CO2 laser**, with an output of **5 kW**, generates a beam, the energy of which is used to melt the surface of the parent metal and also the powdered filler metal.
A special coaxial nozzle supplies the powder and a 4 axis CNC machine is used to apply precise reproducible coatings on parts which are moved in relation to the laser beam. Complete surface coverage is obtained by partial overlapping of the beads.

TECHNOGENIA® produces its own cast **tungsten carbide powders** which are **very pure** and **very hard** (3000 to 4000 HV). These powders, spherical or crushed to suit different applications, alloyed with nickel-based metal powders which serve as a matrix, provide surfaces with excellent abrasion and erosion resistance and also very good corrosion resistance.

THE ADVANTAGES OF THE LASERCARB PROCESS

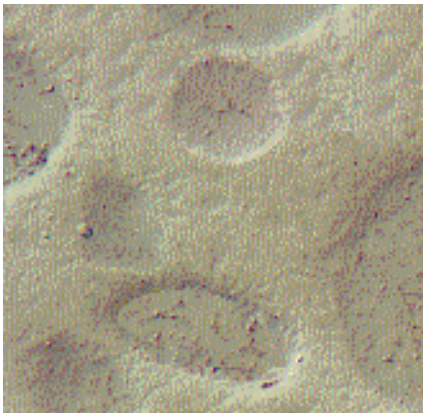
Coatings obtained by laser are metallurgically bonded to the parent metal and are 100 % dense (i.e. non-porous). The **LASERCARB** process thus eliminates the problems of scaling and non-adherence typical of plasma surfacing techniques.

LASERCARB eliminates all cracking in coatings.

The very precise control of the energy imparted to the parent metal in the **LASERCARB** process produces dilutions of less than 1% of the parent metal in the coating and minimizes or even eliminates any distortion.

The fine metallurgical micro-structures created by the rapid cooling in the **LASERCARB** process make the metal matrix become very hard.

The **LASERCARB** process does not affect the carbide beads which retain all their intrinsic properties, in particular their extreme hardness and thus give the surface resistance to abrasion.



The CNC programmes and controllers used produce coatings which are perfectly reproducible at any time and of an exactly controlled final thickness. This means that large quantities of identical parts can be processed this way.

THE TECHNOGENIA® SERVICE WITH LASERCARB

Fifteen years of acknowledged experience in the field of hard facing.

Reputable cast tungsten carbide hard facing products.

Unequaled precision of **LASERCARB** surfacing.

Reproducible coatings by means of laser equipment associated with 4-axis numerical control :

- X-Y table travel : 47" x 24", (1200x600 mm)
- CNC rotating axis, manually tiltable from 0° to 90°.
- maximum permissible load : 2200 pounds (one ton).

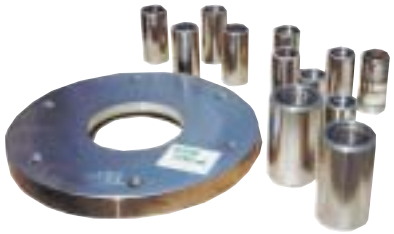
Possibility to grind surfaced parts to the required final dimensions.

Extended useful life of Wear parts after **LASERCARB** treatment.

Other types of powder (cobalt or iron-based, etc.) available.

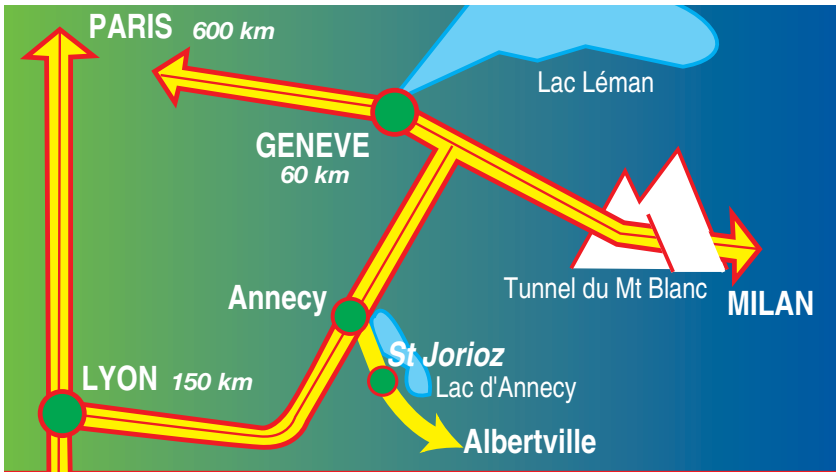
Competitive processing costs and quick delivery times to meet production schedules.

APPLICATIONS FOR THE LASERCARB PROCESS



- **Petroleum Industry**
- **Ceramic and Related Industries** : conveyor auger thread edges, scrapers, blades, moulds, valve seats, plugs, etc.
- **Plastics Technology** : extrusion and injection auger thread edges.
- **Paper Industry** : refiner discs, pulp machine bottom plates.
- **Power Generation** : valve seats and needles.
- **Metals** : cylinders, rings, rollers, etc.

TECHNOGENIA



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