Overall activities

2019

Outline

- LaserCo DT in one slide
- LaserCo DT Key Milestones
- Business model
- Laser cladding advantages
- Equipment peculiarity
- LaserCo strengths

LaserCo DT in One slide

Founders:

Diarotech, Gemma, Abraco

Shareholders:

6 private people +1 public invest (7%)

Equity: 650.000

Staff: ~10 people (7 inside, 3 outside)

Key milestones

- 2007 : LaserCo DT founding
- 2011 : Commercialization of Diamond Technology
- 2013 : First ASME IX qualification for laser cladding of Nuclear equipments
- 2014 : Diamond laser cladding worldwide licence for oil and gas + selling of the laser machine
- 2015 : New workshop / new laser / new techniques / new machining and grinding equipments
- 2017: Industrialization of the laser-wire cladding

Business model

- Services
- Projets

Business model

- Services

Anti-wear coatings

Functional coatings

Additive manufacturing

+

Procurement
Machining
Expertise

Business model

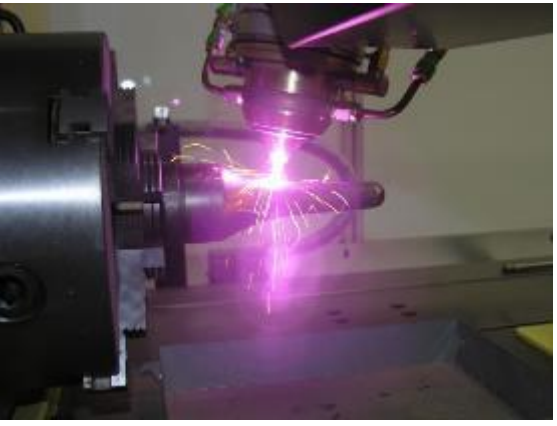
- Services

Anti-wear coatings

Functional coatings

Additive manufacturing

Laser cladding



Thermal spray

Submerged arc welding

Business model

- Services
  - Anti-wear coatings
    - Corrosion resistance
    - Abrasion resistance
    - Erosion resistance

Before

After

Markets:

- Steelmaking
- Sugar
- Energy
- Chemistry
- Grinding

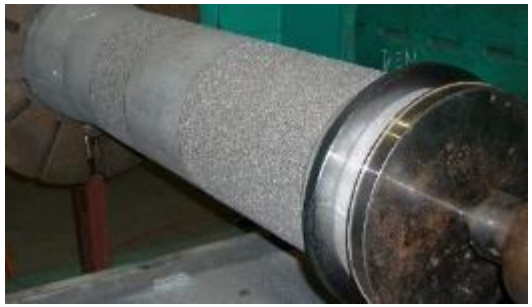
Before

After

Business model

- Services
  - Functional coatings
    - Grip
    - Amagnetic
    - …

Oil & Gas



Markets:

- Energy
- Paper
- …

Paper

Business model

- Services
  - Additive manufacturing
    - Refurbishment
    - New parts

Nuclear Qualified Procedures

Markets:

- Steelmaking
- Energy
- Chemistry
- Mechanic

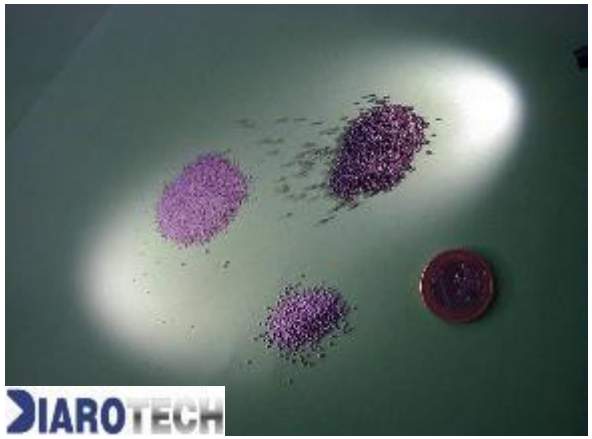
Business model

- Projects
  - New coating developments
  - Process developments
  - Laser cladding partnerships

❖ Completed projects
❖ On-going projects
❖ Research thematics

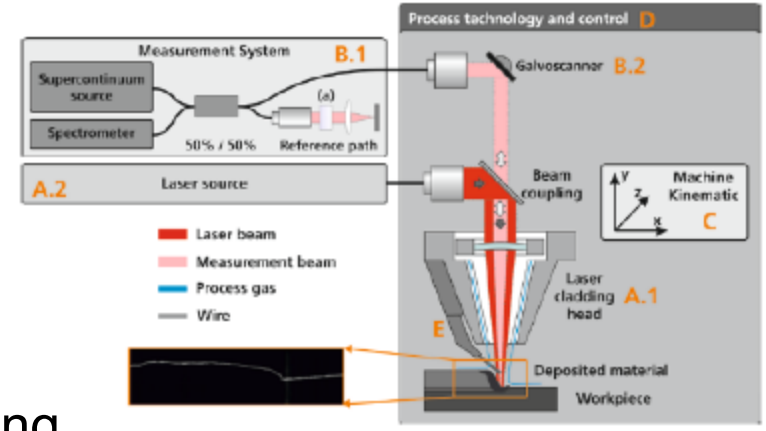
Business model

- Projects
  - Completed projects
    - Diamond laser cladding → LaserCo funding
    - Grip → customer funding



Business model

- Projects
  - On-going projects



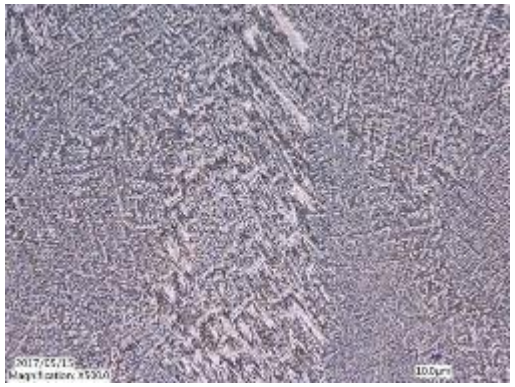
- TopCladd → Europe funding

  Real-time cladding regulation based on seam weld characterization (interferometry)
- Sputtering targets refurbishing → customer funding
- MatLaMeD → Europe funding

  Combining powder and wire laser cladding in order to develop new alloys for the molds and steelmaking industry

Business model

- Projects
  - Research thematics
    - High value coatings (Ti, Ni, Mo,…)
    - Wire laser cladding
    - High Speed Laser Cladding (HSLC)
    - High mass flow rate cladding
    - Laser cladding integration for customers



Laser cladding advantages

- Minimal heat transfer to the support
  - → No/Lower deformation
  - → Better mechanical properties (smaller grains, different microstructures)
  - → Less pre- & post- heat treatments
  - → More materials combination possibilities
- Large flexibility on the coating thickness (from 0.5mm up to >30cm)
- Very homogeneous (negligible dilution)
- No oxidation

Arc welding

Laser cladding

Equipment peculiarity

Laser cladding:

Fully integrated 7 axes CNC machine

Normal head:

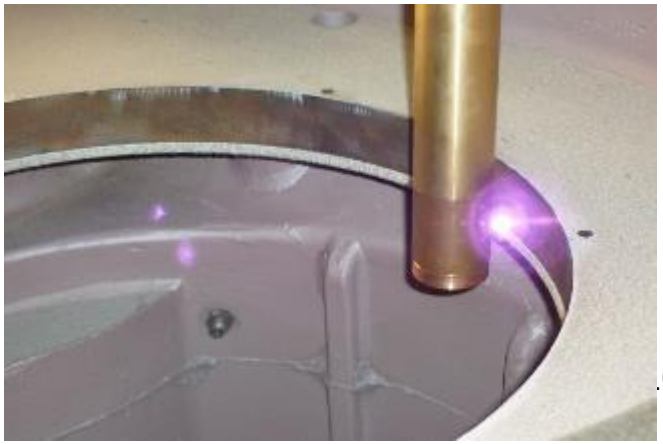
Powder & wire feeding

(up to 10kg/h)

Inner head:

Inside tube cladding

D_{min}=±50mm (2”)
L_{max}:±1600mm (65”)



LaserCo DT strengths

- Diamond coating (unique in the world)
- 10 years of industrial experience
- In-house engineering of the complete machine (7 axis moving + integrated automation of piece-head displacement, feeding powder and laser power)
- R&D capability
- Laser fit to be moved for **jobs on site**

LaserCo DT strengths

- Experience with many added material

Added material
Steels and stainless steels (316L, 414N…) up to 65HRC
Ni alloys (up to 60HRC) and Ni superalloys (625, 718, C22, C276,…)
Cobalt alloys (stellite 1,4,6,12, 21, 25; ultimet;…)
Aluminium alloys
Copper alloys (CuAlFe alloys up to 30HRC)
Titanium alloys (grade 2, grade 6)
Sn alloy (SnSb8Cu4)

LaserCo DT strengths

- Experience with many substrates

Substrates
Steels (S355, 42CrMo4, Creusabro,…)
Cast iron
Stainless steels (316L, 904L,…)
Ni alloys
Aluminium alloys
Copper

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