Press release

Additive manufacturing for very large and complex parts

- *The Basque technology centre, IK4-TEKNIKER specialises in material addition techniques that use laser to manufacture components*
- *Additive manufacturing is applicable to sectors such as the automotive business, moulds, aeronautics or railways*
- *IK4-TEKNIKER's achievements in this field will have an outstanding presence at the next edition of the Machine Tool Biennial*

(Eibar, Basque Country 21 April, 2016).- Additive manufacturing is an advanced manufacturing technique that allows structures and parts to be made by successively depositing layers of material.

One of the most widespread additive technologies of recent years is called Laser Metal Deposition (LMD) in which a laser melts a metal powder that is injected on to the surface of a substrate to generate 3D structures and coatings.

This technique has numerous applications to address surface wear and corrosion resistance or perform repairs on components used in the automotive business, moulds, aeronautics or railways. It has also been used lately to manufacture 3D structures and parts.

The Basque Technology Centre, IK4-TEKNIKER, has applied LMD to the reinforcement of components and repairs involving tools, moulds and dies that have previously failed in machining operations or have undergone design modifications and develop defects during their operating life. Researchers have also addressed the production of metal parts and components used in complex structures, prototypes and on elements of a more functional character.

IK4-TEKNIKER has also made high quality stainless steel alloy structures with deposition rates close to 2 Kg/h.

It is within this field of specialisation that experts at the technology centre have also used other kinds of materials such as tool steel grades for cold and hot operations, nickel, titanium and cobalt-based alloys or tungsten carbide composites embedded in cobalt matrices on a number of metal bases.

Profitability in large sizes

The LMD process is specifically geared towards the production of medium and large metal parts that in the past were produced by using conventional processes such as subtractive or forming techniques.

This new technology allows raw material consumption to be drastically reduced as the ratio between the amount of starting material required and what is actually deposited is close to 1:1.

Both the savings obtained and shorter process times have made it possible to significantly cut back the final cost of manufacturing processes.

The LMD process is profitable in those sectors in which more than 80% of the workpiece is machined and when the materials used on it can be barely be machined or are hard or abrasive. These are features commonly found in sectors related to energy, aeronautics and prototypes.

In addition to a short ‘lead time’, LMD responds quicker compared to sectors involving castings or injected parts. The absence of moulds also reduces lead time by more than 50% whenever single parts are involved.

The end results of the research work carried out by IK4-TEKNIKER in the field of additive manufacturing will be presented at the next edition of the Spanish Machine Tool Biennial (BIEMH) to be held from May 30 to June 4 at the Bilbao Exhibition Centre at a stand in hall number 1 located between aisles B19 and C20.

Additive manufacturing techniques will play a very active role in the field of industry 4.0 as they will allow for the customisation of products and processes.

Industry 4.0, or the so-called fourth industrial revolution, is a new manufacturing paradigm based on integrating electronic, information and communication technologies within the scope of productive technologies.

Concerning IK4-TEKNIKER

With more than 30 years of experience in applied technology research that has been be transferred to companies, IK4-TEKNIKER has achieved a high degree of specialisation in four major areas (Advanced Manufacturing, Surface Engineering, Product Engineering and ICTs). This means that its cutting edge know-how has been made available to customers to meet their requirements.

Further information

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IK4-TEKNIKER | Itziar Cenoz
Itziar.cenoz@tekniker.es | Tel. (34) 943 256 929
////////////////////////////
GUK | Javier Urtasun
urtasun@guk.es | Tel. (34) 637 273 728
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