



Co-operation profile details from Enterprise Europe SEIMED

TONL20130624001 - New High Velocity metal forming technology - Multi Process Center Technology collaboration OFFER

Abstract

A Dutch company in formation offers a new metal forming technology which has been developed for deforming sheet metal and hollow bodies such as profiles. The technology can be used under cold, warm and hot conditions. The company is looking for an experienced machine builder or integrator in the field of metal forming with an engineering department and possibly connections within the automotive or/and aerospace industry.

Description

A new metal forming technology has been developed (incubator phase) for deforming sheet metal and hollow bodies such as profiles (<5mm thickness on average). The technology can be used under cold, warm and hot conditions with strain rates ranging seamless from quasi-static to intermediate and even high strain rate.

For 'warm' forming, such as 'hot metal gas forming', an economical means of gas heating has been developed. Applications are for example automotive panels for as long as no multistep tooling is involved such as is the case with deep drawing. It's a hybrid process combining hot-metal gas forming and hydroforming- like processes with a far higher degree of flexibility. Other applications: double curved 2.5D shapes with regular to high complexity.

Compared with hydroforming, this new technology offers much faster fluidum evacuation time, Corrosion risk can be neglected, much faster cycles, and workhardening during deformation can be delayed effectively. Moreover, the closing pressure (hold-down) can be reduced to over 50%.

Moreover, in contrast to hydroforming there is an active medium incorporated with fast response time.

In the current State of the Art forming technologies for automotive applications face challenges when it comes to the type of material which is used. Weight saving targets point indisputably in the direction of high strength steels or aluminium. Both of which are difficult to deform due to (for example) strainhardening and springback behaviour. Overcoming springback requires springback compensation in the design of moulds/dies and lead in general to very expensive iterative solutions. Next to this, most forming technologies cannot be optimized limitless because of process intrinsic parameters who can be rigid and not easy to stretch up.

The developed technology aims for more process flexibility and more process windows without inheriting the disadvantages to the same extent.

Unique features:

1. Maximum control over the microstructural evolution
2. A disposable die has been developed to help keeping prototyping economical.
3. Highly adaptive process to material, shape and dimension
4. Perfect energy coupling leads to economic production
5. Use of high tech construction, no heavy construction/fundament as seen in conventional presses.

Target partner expertise sought:

- Type of partner sought: - High interest in High Velocity metal forming (dynamic forming operations);
- Knowledge from inertia effects and High Energy Rate forming is a clear pre;
- R&D environment or suitable equipment testing facility should be available;
- Expertise in developing and marketing complex and capital intensive technologies.

Domain of expertise:

- Mechanical Engineering -academic / non academic-
- Physics (thermodynamics and gasdynamics) -academic-
- Metallurgy -academic-
- Fluid mechanics -non academic-
- Mechatronics and software development -no prerequisite-
- Specific area of activity of the partner: Machinebuilder or integrator in the field of metal forming with a experienced engineering department that wants to apply this technology in superplastic (warm and hot) and hyperplastic (medium strain rate) forming operations.

An established international sales network and connections within the automotive or/and aerospace industry are an asset.

- Task to be performed by the partner sought: >500

Key information:

Country of origin: NETHERLANDS

Listed under: Manufactura Industrial \ Construcción \ Tecnologías de Materiales \ Otras Tecnologías Industriales \ Industria

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