Partners

The SOUNDCAST project comprises 7 partners from 4 European countries:

- ❑ 3 SMEs
- ❑ 1 large enterprise
- ❑ 3 RTDs

SOUNDCAST CONSORTIUM

soundcast@aliasa.es
www.soundcastproject.eu

SME

ALIASA
HPDC Foundry
- Fabrication of a weldable demonstrator.
- Automotive/motorbike sector

ALIASA GRUPO ALIASA — Mikel Eguiazu, www.aliasa.es, SPAIN

VDS
Vacuum System Manufacturer
- Technical advice in Vacuum technologies.

VDS — René Bigger, www.vdssa.ch, SWITZERLAND

DIACE
HPDC Foundry
- Fabrication of a high mechanical properties demonstrator.
- Aeronautic sector.

Diace FONDERIE D'ALUMINIUM — Matthieu Hede, www.diace.fr, FRANCE

Additional Industrial Partner

CHEMTREND
Lubricant Supplier
- Technical advice in Lubrication technology.

Chem Trend Release Innovation™ — Darko Tomazic, www.chemtrend.com, GERMANY

RTD

IK4-AZTERLAN
Metallurgy
- New alloy development.
- Melt treatment.
- Metallurgical control tool.
- Heat treatment.

Numerical Simulations
- Die design.

IK4 AZTERLAN — Ana Fernández, www.azterlan.es, SPAIN

ASCAMM
HPDC Process
- VPDC laboratory tests.
- Die specialist.
- VPDC process parameter optimization.
- PCA statistical analysis.

ascamm centro tecnológico — Manel Da Silva, www.ascamm.com, SPAIN

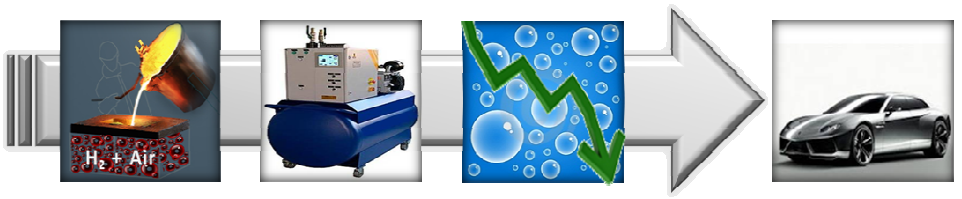
TU-BS (ifs)
HPDC Process
- Lubrication optimization.
- VPDC laboratory tests.

Welding Process
- Laser welding technique
- Electrom beam welding.

Technische Universität Braunschweig — Helge Pries, www.tu-braunschweig.de, GERMANY

"The research leading to these results has received funding from the European Union´s Seventh Framework Programme managed by REA-Research Executive Agency http://ec.europa.eu/research/rea (FP7/2001/2013) under grant agreement Nº315506.

SOUNDCAST



SOUNDCAST

VACUUM-ASSISTED HIGH PRESSURE DIE CASTINGS WITH REDUCED POROSITY AT LOW COST

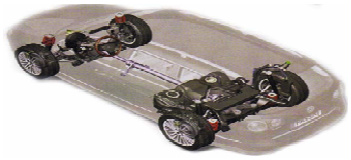
CAPACITIES

http://www.soundcastproject.eu/.

SOUNDCAST

OBJECTIVE

The aim of this project is to provide a **SOUNDCAST Technology** which allows the fabrication of sound and weldable vacuum-assisted HPDC (VPDC) components at low cost by using secondary alloys with enhanced mechanical properties and to establish a VPDC control system that assures casting quality.

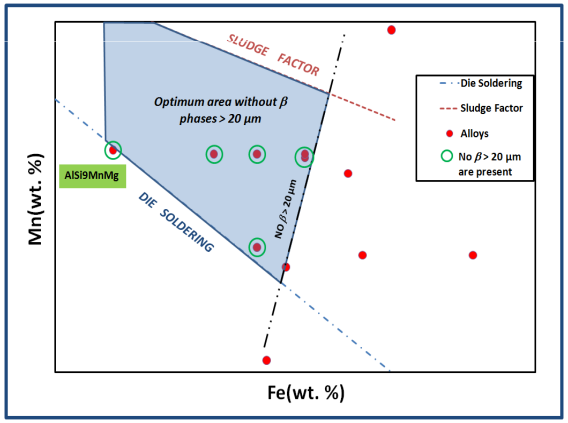
MAIN EXPECTED RESULTS

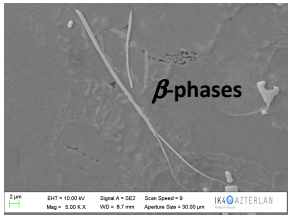
Formulation of a new recycled alloy with good ductility.

An area without harmful β phases (> 20 µm) has been defined for different combinations of Mn & Fe.

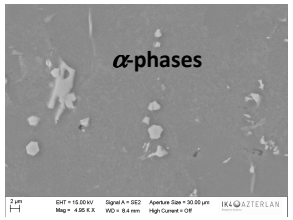
The optimum area is limited by:
- The criteria for die soldering
- The criteria sludge factor
- The limit where no harmful β-phases are formed.

For different iron contents the lowest Mn addition needed for avoiding the presence of harmful β-phases is selected





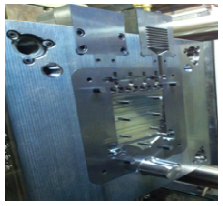
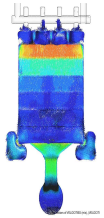
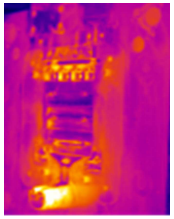
microadditions



Challenge: Convert the harmful β phases into a less harmful α phases by microaddition.

Design of test piece & Simulation of cavity filling

A step casting is selected with thickness between 1-10 mm for evaluation of mechanical properties

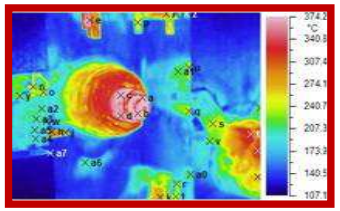
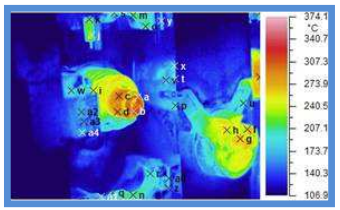




Die lubrication

BEFORE AFTER

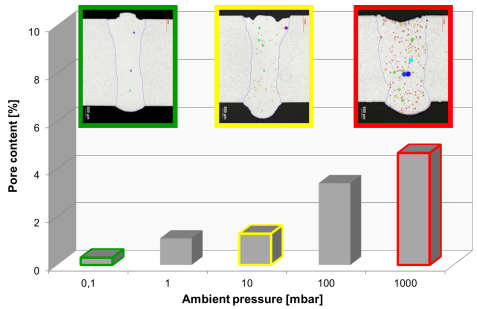
Chem Trend

Development of new die casting lubricants to achieve optimum die lubrication

New welding process.

Challenge: Develop economical laser beam welding technique at reduced pressure reliable to weld aluminum die-casting.



High speed vacuum valves

WITHOUT VACUUM WITH VACUUM

VDS