



ALUMINIUM DUFFEL
mind over metal

Internship for

Materials Science/Chemical Engineers

What is so special about aluminum?

Aluminum is strong, light, durable, flexible, extremely versatile, impermeable, corrosion resistant, an excellent conductor of electricity, non-magnetic, non-flammable, an abundant element in the earth's crust and infinitely recyclable.
Aluminum has unlimited potential to be part of solutions that move society forward.
Its freedom enables people and businesses to create a better future by innovatively using the versatility that aluminum offers.

Your field of work

Since the innovation center is linked to the factory, there is a close collaboration between R&D and production. We can already offer you an insight into different positions where an engineer can end up in industry (R&D, quality service, technical customer support, process technology, etc.).

We can offer you interesting research topics that will help us make our products even better.

Some examples include corrosion studies coupled with electrochemical measurements, MSA analysis of certain measuring equipment, mapping of influence factors on color and gloss of anodized material, effect of method of quenching after annealing on mechanical properties, etc.

Your duties and requirements

- Gather information, both from literature and through collaborators, usually coupled with lab tests or attending industrial trials.
- Analytical mindset and able to work systematically in a team environment.
- Good knowledge of Dutch and English.

Interested?

Then send your CV attn.
Els Verboom (Manager R&D),
els.verboom@aluminiumduffel.com

Aluminium Duffel B.V.

is a European leader in manufacturing and marketing aluminum rolling products for a wide variety of markets (automotive, architectural, construction, consumer products, etc.) worldwide. It has state-of-the-art technology, including the widest cold rolling mill in the whole of Europe and a CALP (Continuous Annealing Line with Pre-Treatment) production line.

The Innovation Center in Duffel, Belgium, therefore focuses on segments such as the automotive and industrial sectors.

Parameter study for standards-compliant FLC/FLD determination using a universal sheet metal testing machine and Digital Image Correlation

Internship project for a Bachelor or Master-level student

Location: Aluminium Duffel, Duffel, Belgium

Forming Limit Curves and Diagrams (FLC/FLD) are essential for assessing aluminium sheet formability. Their accuracy depends on controlled testing and reliable full-field strain measurement.

Following the installation of a new universal sheet metal testing machine with a Digital Image Correlation (DIC) system, Aluminium Duffel aims to establish a robust test and evaluation method. The internship will determine which test, measurement and evaluation settings provide the highest reliable major-strain values while meeting applicable standard requirements.

The student will plan and perform a structured parameter study using representative aluminium sheet materials and specimen geometries. The influence of specimen preparation, test execution, DIC processing and limit-strain evaluation on strain level, repeatability, failure location and result validity will be assessed.

Main activities:

- Review applicable standards, literature and internal requirements for FLC/FLD testing.
- Define and execute a design of experiments covering specimen preparation, lubrication, clamping, deformation speed and test termination.
- Investigate DIC settings, including pattern quality, calibration, image acquisition, facet and step size, filtering and strain calculation.
- Compare evaluation methods for detecting localised necking and determining limiting major and minor strains.
- Define a robust parameter window and prepare a practical standard operating procedure with settings, acceptance criteria and reporting guidance.

Deliverables include the experimental plan, a structured test and DIC dataset, comparison of the investigated settings, and a validated recommendation for routine standards-compliant FLC/FLD measurement.

The project scope will be adapted to the length of the internship.

The project is suitable for a Bachelor or Master student in materials science, mechanical engineering, manufacturing engineering or a related field. An analytical and systematic working style, practical interest in experimental mechanics and data analysis, and good English communication skills are expected. Knowledge of aluminium, DIC, statistics or programming is an advantage.