

Beyond Aluminium

ALUWAG

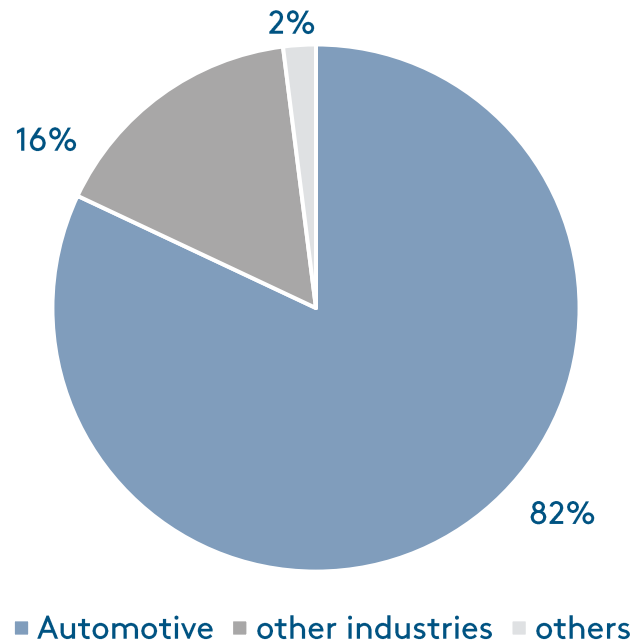
NUMBERS AND FACTS

Foundation	1971
Location	Niederbüren
Jur. Form	Public limited company
Certificate	EN ISO 9001, IATF 16949, ISO 14001, OHSAS 18001
Employees	120
Apprentices	Casting technologist, Casting mould maker, Business management assistant, Design engineer
Areas	10'000 m ² Production
Output	approx. 4'400 tons per year
Organisation	2-Shift, 3-Shift

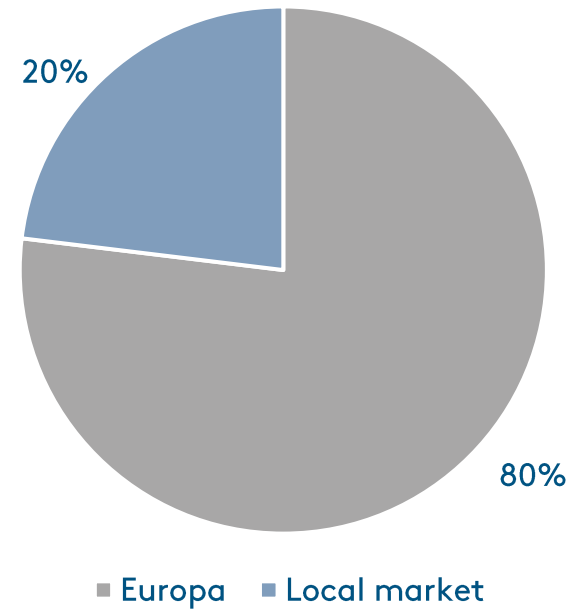
FACTS AND FIGURES

Turnover 2022: CHF 33.3 Mio.

Breakdown of turnover



Sales area



DIE CASTING CELLS

**Number of
plants**

1
1
5
1
1
1

**Closing force
in tons**

400
530
800
1'200
1'800
2'200



PROCESS

Analysis

Needs analysis

- Feasibility studies
- Material evaluations
- Rough costs analysis
- Risk analysis

Development

Material technology

- Basic research of materials
- Secondary alloy processing (standard)
- Primary alloy processing (standard-plus)
- Primary alloy processing (high-end)

Engineering und Laboratory

- Material & component analyses
- Component development
- Process development
- FEM calculation
- Microscopy
- X-ray / CT analyses
- Spectral analyses
- Hardness testing
- Tensile testing
- Filling- & solidification simulations
- Design of die casting tools
- prototyping
- Sampling

Production

Casting

- Furnace technology (> own decentralized melting concept)
- Aluminium die casting (closing force 400-2'200t)
- Vacuum technology
- Jet-Cooling
- Squeeze Pins
- Datenmatrix-Code for the traceability of the parts

PROCESS

Post - Processing

Heat treatment & Joining Technology

- Heat treatment (T4 until T6)
- FSW (friction steer welding)
- Bonding

Mechanical Machining

- CNC milling
- CNC turning
- Wash processes with or without residue waste-requirement
- Tightness Test

Surface-Technologie

- Functional coating
- Decorative coating

Assembling

- Assembling of modules

ALLOYS

Standard Alloys

226D	EN AC-46000	AlSi9Cu3(Fe)
230D	EN AC-44300	AlSi12(Fe)
231D	EN AC-47100	AlSi12Cu1(Fe)
239D	EN AC-43400	AlSi10Mg(Fe)
349D	En AC-51200	AlMg9

Commercially available Primary Materials

Unifont-94	keine	AlZn10Si8Mg
Silafont-36	EN AC-43500	AlSi10MnMg
Castasil-37	keine	AlSi9MnMoZr
Magsimal-59	EN AC-51500	AlMg5Si2Mn

Aluwag Alloys / Primary Materials

2018DSQ2	n.N	AlSi9Mg
356D2	n.N	AlSi7Mg0,3
356DSQ	n.N	AlSi7Mg0,3
357D	n.N	AlSi7Mg0,6
357DSQ	n.N	AlSi7Mg0,6
602D	n.N	AlFe2Mn
604D	n.N	AlMnFe
701DSQ	n.N	AlMg2Si1
813D	n.N	AlSi12CuMg
813DSQ	n.N	AlSi12Cu2MgTi
813NiDSQ	n.N	AlSi12Cu2Ni2Mg
814D	n.N	AlSi17Cu4MgP
831D	n.N	AlSi19Cu4Mg
927D	n.N	ZnAl27
928D	n.N	ZnAl27Zr
930D	n.N	ZnAl30

GASINJEKTION-TECHNOLOGIE

Maturity of Technology



Technology Explanation:

Production of geometries that could previously not be demoulded. Application in the conventional die casting process.

During the solidification of the melt, a gas is partially injected into the mould under high pressure via an injection nozzle.

The "liquid aluminium soul" is displaced from the mould by the gas.

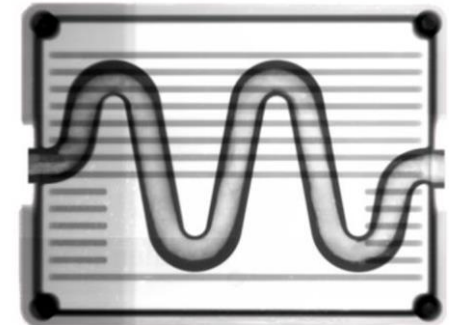
This creates a cavity. This process can be used to produce complex internal geometries.

The EU funded project is technically and financially supported within the framework of MAGIT/Horizon 2020.

Aluwag is involved in the industrial implementation of the application.

Applications:

- Cooling geometry for power electronics
- Leanness for weight reduction



Example of Application: Cooling Body
Source: Hochschule Aalen

FSW – FRICTION STEER WELDING

Maturity of Technology

Pre-Development

Development

Prototypes

Pre-Series

Series



Technology Explanation:

Application in the joining technology of materials.

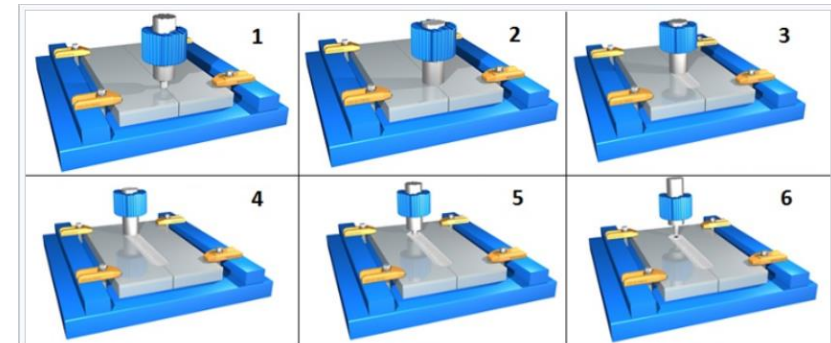
Aluwag has this process in series production for various products.

Applications:

- Cooling Channels in Stator support
- Connection of different materials

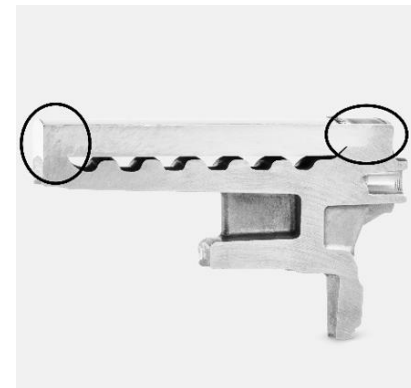


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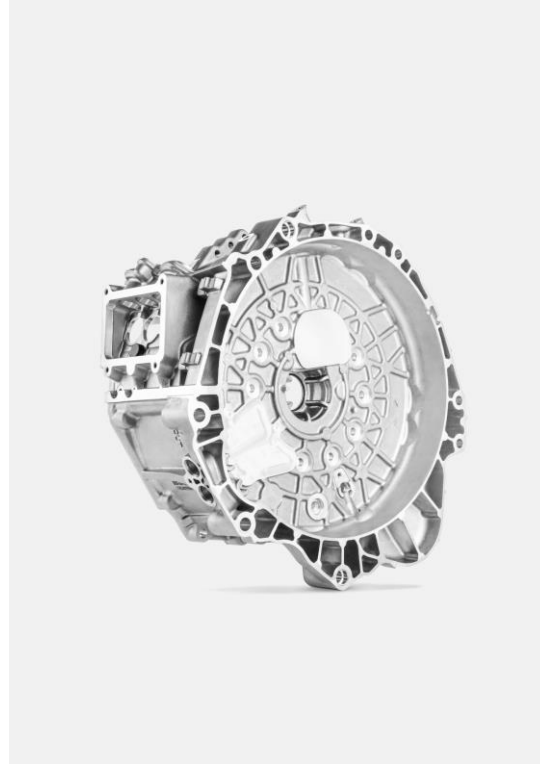


Prinzip des Rührreibschweißens:

1 Eintauchen des rotierenden Werkzeugs 2 Verweilen, um Hitze zu generieren 3 Verfahren 4 Verfahrenbewegung stoppen 5 Werkzeug herausziehen 6 Fertige Schweißnaht inspizieren



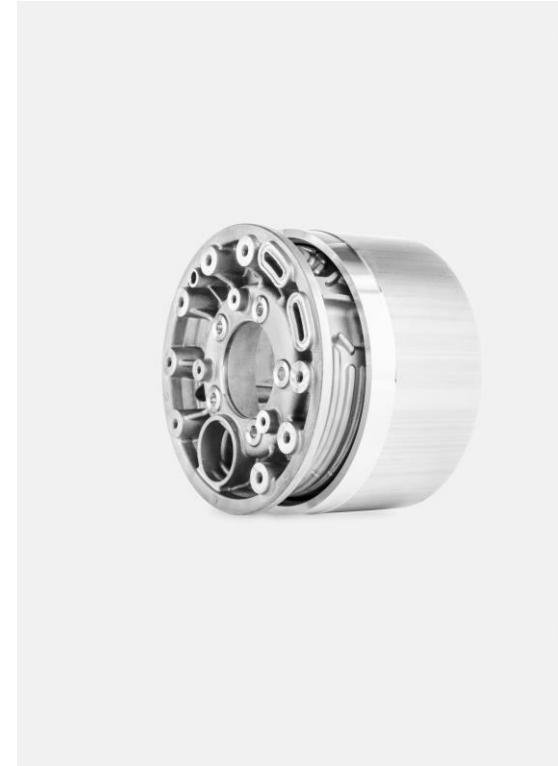
PRODUCTS: AUTOMOTIVE



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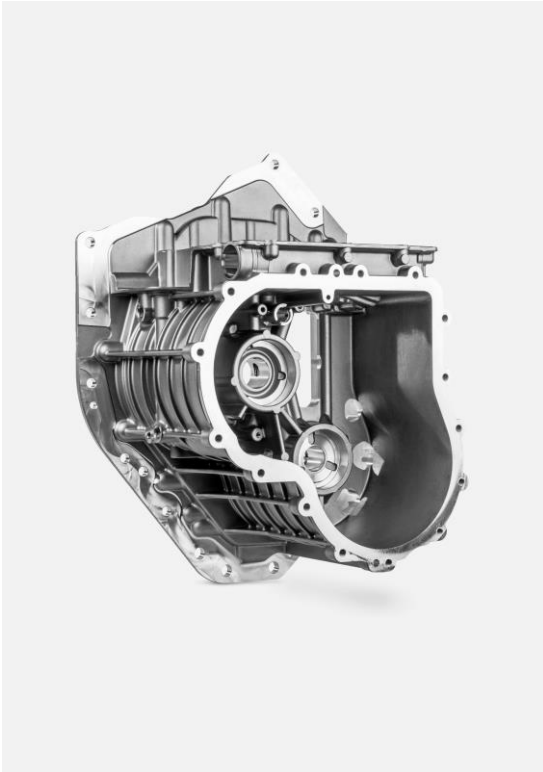
PRODUCTS: AUTOMOTIVE – E-MOBILITY



PRODUCTS: AUTOMOTIVE



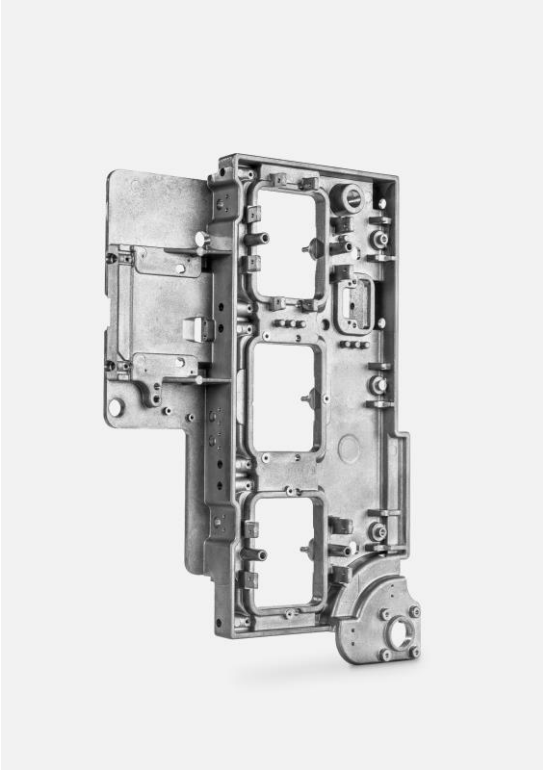
PRODUCTS: MARINE/NAVY



PRODUCTS: INDUSTRY



PRODUCTS: MEDTECH



PRODUCTS: HOUSEHOLD



CUSTOMERS



Mercedes Benz



Roche
Diagnostics



ALUWAG

ALUWAG AG
Nellen 12
CH-9246 Niederbüren
www.aluwag.ch



MANY THANKS.

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