



## **Magsimal<sup>®</sup>-plus**      **High-Tech aluminium HPDC alloy for Light Weight Design in Automotive Structural Application**

**HPDC alloy with very high mechanical and extraordinary high dynamic properties within thin wall design in the as cast state.**

Mechanical properties in the as cast state F:

Wall thickness	YTS R <sub>p0,2</sub>	UTS R <sub>m</sub>	Elongation A
2 - 4 mm	190 - 230 MPa	310 - 355 MPa	8 - 13%
4 - 6 mm	160 - 200 MPa	280 - 340 MPa	9 - 14%

Mechanical properties in temper T5:

Wall thickness	YTS R <sub>p0,2</sub>	UTS R <sub>m</sub>	Elongation A
2 - 4 mm	210 - 245 MPa	320 - 370 MPa	8 - 12%
4 - 6 mm	180 - 225 MPa	300 - 360 MPa	9 - 13%

- **Magsimal<sup>®</sup>-plus is an AlMg high pressure die casting alloy with excellent mechanical properties for structural parts in the BIW of vehicles.**
- **The high strength of Magsimal<sup>®</sup>-plus enables very thin lightweight designs. A weight reduction up to 40% in comparison to an AlSi10MnMg design may be achieved.**
- **No T6 or T7 heat treatment required:**  
Cost cutting is possible due weight reduction of the cast and due skipping heat treatment and straightening after heat treatment's distortion.
- **Excellent resistance to sea water atmosphere.**  
Protective coatings are often unnecessary.
- **Advanced application range for casts in the as cast state F.**
- **Very suitable for applications in vehicle designs:**  
Excellent energy absorption capacity in the event of a vehicle crash or impact to battery trays and covers,
- **Substitution of complex steel sheet designs in vehicle designs is possible.**
- **Substitution of aluminium forgings in vehicle designs is possible.**
- **Excellent weldable**, with welding technique similar to 5xxx-series.
- Well suitable for self-piercing riveting, clinched joints and adhesive bonds.
- **Very high resistance to stress corrosion cracking.**
- **The casting of Magsimal-plus requires special know-how in the field of die design, melting and casting technique.**

# Magsimal<sup>®</sup>-plus [ AlMg6Si2Mn ]

**RHEINFELDEN**  
Solutions thru Innovation



## IMPRINT:

The composition of the alloy Magsimal-plus is patented by RHEINFELDEN ALLOYS GmbH & Co. KG

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