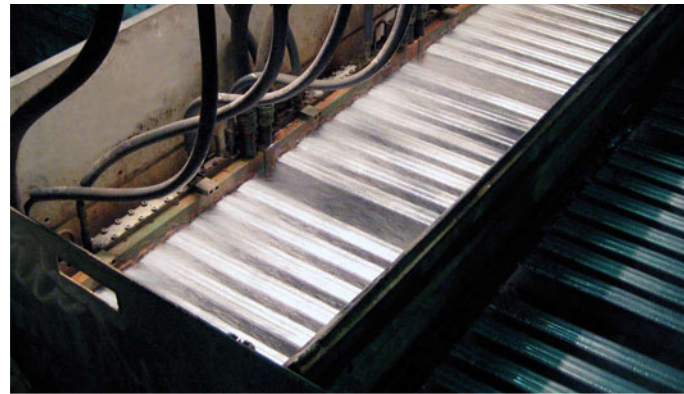


trimal[®]-05



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The high pressure die casting alloy
for crash relevant application

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The **trimal[®]-05** (AlSi10MnMg) alloy is a low iron high pressure die cast alloy that was developed for die cast parts requiring high static and dynamic properties. The TRIMET ALUMINIUM AG smelter in Essen, Germany, produces the alloy from extremely pure metal, thus guaranteeing excellent mechanical properties and corrosion resistance. As a result, cast parts that are produced from **trimal[®]-05** are installed without corrosion protection.

Due to a silicon content of about 10%, castability is excellent. Parts with thin walls and numerous ribs can be cast without problems. The balanced ratio of iron to manganese prevents the part from sticking to the die and increases the die life. The strength of the parts is regulated by adjusting the magnesium content.

trimal[®]-05 is a weldable alloy that can be used with all common welding methods. The material combinations casting/casting and extrusion/casting are possible and in use applied. After appropriate heat treatment, elongation can reach over 15%.

Chemical composition (weight%)

%	Si	Fe	Cu	Mn	Mg	Zn	Ti	Others
Min.	9,50			0,4	0,1		0,03	
Max.	11,00	0,25	0,05	0,7	0,4	0,07	0,12	0,2

trimal[®]-05 can be strontium modified upon request

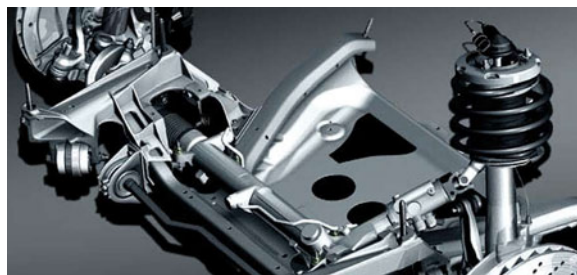
Mechanical properties

The following mechanical properties were determined using real parts and are considered to be reference values for the use of the alloy. Strength and elongation are regulated by adjusting the magnesium content, meaning a low magnesium content creates great elongation and medium strength while a high magnesium content results in great strength and medium elongation.

Temper	Yield Strength Rp0.2 N/mm ²	Tensile Strength Rm N/mm ²	Elongation A %	Hardness HB
F	120 - 150	240 - 290	5 - 12	72 - 100
T5	160 - 220	280 - 320	4 - 10	85 - 110
T4	100 - 140	190 - 250	13 - 18	60 - 75
T6	200 - 270	290 - 350	6 - 13	85 - 110
T7	120 - 170	200 - 250	10 - 16	70 - 80

Applications

trimal[®]-05 is used for applications in which the static and dynamic properties of the part must meet the highest demands, for example engine cradles, space frame nodes, motor mounts or steering columns. Depending on the demands, **trimal[®]-05** cast parts can be delivered in the as cast state or after an appropriate heat treatment.



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