Processes.

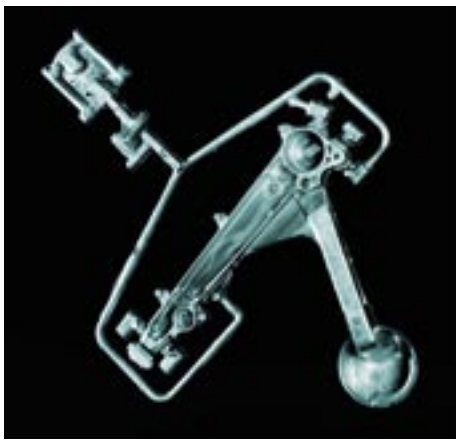
The efficient and flexible process for manufacturing structural components.

Structural.

BÜHLER

Structural.
Your die casting components become weldable and ductile.

The goal of Structural is to select the suitable technology for every specific application.
This enables you to achieve the best possible combination of quality and efficiency.



Melting and alloy preparation
- AlMg or AlSiMg as common alloys
- Checking of the alloy composition is required close to production
- Filtering and impellering is of advantage
- Lower content of oxides, carbides, and other contaminants increases the required mechanical properties of the component
- Fast responses to deviations in the alloy composition reduces the scrap rate

Metal feed
- Optimized metal feed from the top
- Evacuation-independent metal feed increases component quality
- Metal feed into the shot sleeve with low turbulence provides structural advantages
- Accuracy of metal feed is not coupled to evacuation
- Low temperature loss prevents early solidification and produces a good structure
- High and reproducible accuracy of metal feed translates into process consistency and therefore lower costs
- Virtual absence of oxidation produces homogeneous structure and therefore assured higher ductility values

Evacuation
- Flexible evacuation concept matched to the requirements of the component reduces the production costs
- Structural does not require any special-purpose machine, standard machines will suffice
- Evacuation system operates with off-the-shelf valves or chillblocks
- No quality deterioration due to preliminary evacuation in case of imprecise metal feed under vacuum
- Vacuum level matched to the requirements of the component translates into lower unit costs
- All Buhler standard machines with real-time control are suitable for the Structural process
- Low evacuation capacity translates into lower capital investment and low unit costs

Spraying, casting, and die

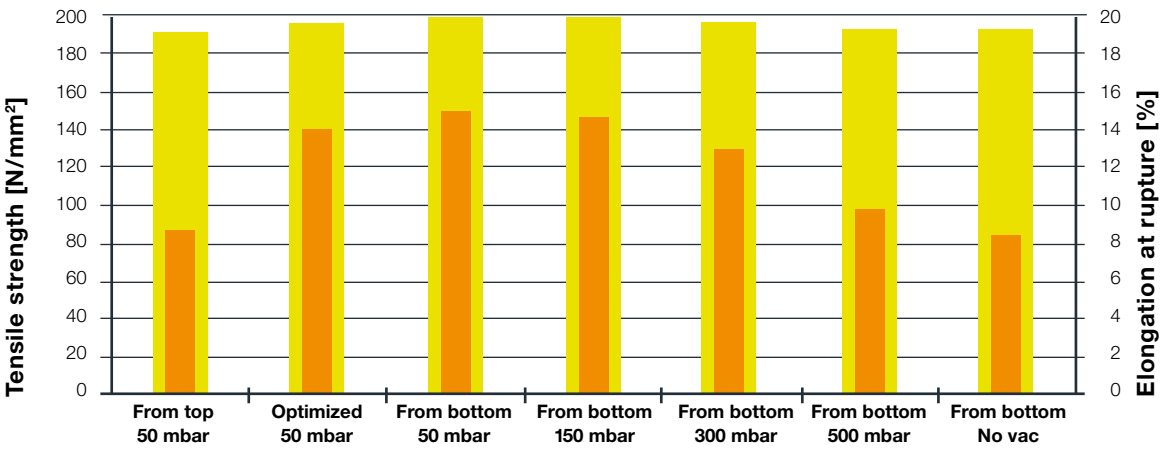
- Precondition: a die design matched to the alloys and the component requirements
- Plunger movement matched to component and die evacuation assures component quality
- Die spraying matched to the component requirements reduces necessary operating supplies
- The right cooling concept has a decisive impact on the solidification process and thereby also on the component quality
- Real-time control means stable shot parameters and process consistency and therefore lower scrap rate
- Minimized gas porosity thanks to matched die spraying process assures heat treatment

Heat treatment and joining

- The right matching of alloy, process steps, and heat treatment produces the desired component quality
- Alloy selection and the right process steps assure cost-efficient weldability of components
- Alloy selection and the right process steps: the most efficient road to ductile components
- The Structural process may have a beneficial impact on the heat treatment stage and helps reduce process costs

Material characteristics

Silafont 36 (AlSi9MgMn), T6, Mg 0.12%



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Bühler Druckguss AG
CH-9240 Uzwil, Switzerland
T +41 71 955 12 12
F +41 71 955 25 88
die-casting.info@buhlergroup.com
www.buhlergroup.com