

# Zinc Die Casting Award in Germany 2008

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Since 48 years zinc die castings haven been awarded in national and international competitions. In 2008 the German zinc die casting competition took place again. The prizes for the technically most skilful and for the most innovative zinc die casted parts are awarded on request of the zinc die casters. There are three main reasons for this event:

- Due to various surface treatments or the use as a component within an assembly zinc die castings are to a certain extent “Hidden Champions” – designers and customers sometimes do not know that it is zinc die castings that make their automobile or machine running.
- The award provides the user with an overview over the technical capabilities of zinc die castings and the broad variety of their applications.
- The zinc die casting award gives the participating zinc die casters the opportunity to make the quality of their work known

## The History of the zinc die casting awards

In 1960 the first Zinc Die casting Award has been offered by the New Jersey Zinc Company within the USA. It was turned into an international award in 1963.



Figure 1: Early certificates for the international zinc die casting award

The history of the international zinc die casting award is closely connected with the international zinc die casting conferences. The first international zinc die casting conference took place in 1954 in London. Later on the presentation of the winners of the international zinc die casting award became a tradition and a highlight of these conferences which took place every third year.

The participants in the international competition were the winners of the national awards: the winner of the winners we may say. Participating national associations came from Argentina, Australia, Brazil, Canada, Spain, France, India, Italy, Japan, Mexico, Scandinavia, UK, USA and Germany.

## The zinc die casting award in Germany

The German zinc die casting award was established in 1967 and at that time it was organised by Zinkberatung (Dr. Johnen). After 1998 it suffered from a longer break and was re-

established by Initiative Zink in 2006. Among other zinc applications zinc die casting plays a meaningful role in Germany. Worldwide today over 10 Mio. t zinc are produced annually. In Germany about 670.000 t of zinc per year are used in its various applications: zinc sheet for roofing, corrosion protection for steel, alloying element for brass, zinc compounds. About 70.000 t Zinc have been die-casted in Germany in 2007. While in other zinc applications the tonnage is a usual figure to describe the meaning of a branch, in zinc die casting it is more the number of casted parts that can give you an exact impression but of course this number is difficult to gain.

Within the zinc die casting award two categories are defined:

- **Category 1** (ambitious castings) applies to those parts which require specific skills in construction, casting or surface treatment.
- In **category 2** (innovations and conversions) those parts are reviewed that show a high degree of innovation. This can be a completely new construction in zinc die casting or the conversion from a different material to zinc die casting for a specific already existing component.

The jury consisted of five experts from science and from the zinc alloy industry:

- Herr Prof. Kallien von der FH Aalen,
- Herr Jeschke für den Verband Deutscher Druckgießereien VDD
- Herr Dr. Feikus als Vertreter des Verbands Deutscher Gießereifachleute VDG,
- Herr Lippa als Vertreter der Legierungshersteller und
- Herr Dr. Weise vom Fraunhofer Institut IFAM in Bremen.
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Eighteen zinc die casted parts from 11 companies have been submitted for the competition in 2007/2008 in the two categories. The participating companies are located in Germany and in Switzerland. Impressively these parts document the high standard as well as developments in zinc die casting. The jury decided on six awards within the two categories and one additional special award.

### The results in category 1 (ambitious castings):



The winner in category 1 (ambitious castings) is Druckgusswerk Ortmann GmbH & Co. KG for its component for a pneumatic attendance unit.

A pressure-tight micro-structure is extremely important in this application. The casting convinced the jury by its excellent casting quality and thin wall casting. A number of complex sliders are used during casting. The casting is free of burrs and has very thin drilling diameters with very low tolerances.

The second winner in this category is Artur Monse GmbH with its signal- and power connector for industrial applications.

With a diameter of only 20 mm a high precision in tool making (die making) is required. The part is free of burrs also in its inner part. It also shows complex undercuts. By the extremely precise operation cost savings can be realised compared to mechanical treatments.





The third winner in category 1 is HDO Druckguss- und Oberflächentechnik GmbH with its enclosure for a freestanding armature for bathtubs.

The casting convinces by its comparably large planar surface the can be characterised as high quality in the raw casting. The surface treatment after casting leads to a mirror like appearance that can only be gained by using optimum tool temperatures. It has to mentioned that this casting has originally been in brass but with a much higher finishing effort and a higher weight.

## **The results of category 2: innovative zinc die castings and conversions from other materials:**

The first price the jury awarded to Gluske Sachsen GmbH Co. KG for a component that is used to fix glass front doors.

The castings for this application need to satisfy highest mechanical requirements. Especially safety aspects play a major role in the competition of materials when used for heavy glass doors. Zinc die casting in this case convinces by its strengths: near-net-shape casting by a minimum finishing effort. At the same time an additional advantage – compared to the former construction in a different material could be gained with more flexibility in the installation.



The second winner in this category is Injecta Druckguss AG in Switzerland. Their casting is used as a component for motor bikes.

The jury was impressed by the conversion of this component from steel sheeting to zinc die casting in this function and size. The casting of fastenings in one casting provides additional savings in costs. At the same time this casting is highly decorative and depicts a fault free surface with the perspective of corrosion free operation over the life span of the motor cycle.

The third winner in category 2 is Adolf Föhl GmbH with this hinge for an oversize washing machine with an extended aperture angle.

Also in this case the conversion to zinc die casting provided the advantages cost saving with at the same time improved look and additional technical functions. The high weight of the washing machine door requires a high creep resistance.





The jury awarded a special price for six decorative zinc die casting parts casted by HDO Druckguss- und Oberflächentechnik GmbH.

A group of decorative castings for the front side of the new edition of this historic Wurlitzer juke box are made of zinc. They could as well have been casted in plastic but it turned out that zinc reflects the image of high value that applies to the juke box much better. The whole group of castings has been awarded by the jury. The technical requirements of the casting are ambitious. At the same time a different material could be substituted. Therefore this special award combines categories 1 and 2.

### **Future perspective**

The next zinc die casting competition in Germany will take place in 2010 and again it will be awarded at EUROGUSS in Nürnberg. The German zinc die casters would be happy if their winners could again join the competition of the international winners as it has been the case over a number of years in the past.