

Press release

Rapid Prototyping specialist engineers first ever 3D printing technology using phenolic resin

ACTech invests in innovative 3D cold printing technique

Freiberg, 03rd February 2016 +++ The ACTech GmbH, a leading developer and manufacturer of casting prototypes, headquartered in Freiberg/Saxony (www.actech.de), installed in their production area a new 3D printer, enabling it to become the first in the world to produce moulds by means of an innovative, phenolic-bound cold printing technique. The cold phenolic process (CHP) works without the intensive high-temperature post-curing of the moulds and cores that is otherwise commonly used. As a result, ACTech can now provide its customers with prototypes for demanding components much more quickly. To produce mould parts and cores for very high-strength sand casting moulds – which up to now has only been possible only by means of the latest manufacturing technologies, such as laser sintering - is another advantage of these technologies in comparison with traditional Rapid Prototyping technologies.

Faster manufacturing that saves money and resources

ACTech, as a prototype foundry, has many years of expertise in its Additive Manufacturing division and engineered the cold 3D phenolic printing technology in cooperation with the machine manufacturer ExOne. This technology demands only very small quantities of binder to make robust moulds and cores that are able to meet the complex demands and withstand the stresses of the casting procedure. Altogether, ACTech reduced the consumption of binder by more than 100 per cent in comparison with the previous method. These savings recommended the casting process, since a diminished binder ratio decreases casting emissions – a positive effect reducing defects within the casting due to the gas. Because extensive thermal post-curing is also rendered unnecessary, ACTech is now able to manufacture even more demanding and fragile forms more quickly, thereby reducing the scrap rate in casting at the same time.

Filigree casting moulds for a wide variety of materials

The 3D printing system installed at ACTech combines advantages in productivity with enhanced properties in the produced casting mould. Shaping elements, such as cores, can now also be used in iron and steel castings, which has hitherto been

possible only to a limited extent by means of conventional 3D printing systems. "As the first user world-wide, we are now able to produce very robust geometries and cores – enabling defect-free manufacturing of extremely filigreed structures even for the most demanding castings and alloys - thanks to the 3D printing technology CHP ", said Norbert Demarczyk, head of production and proxy at ACTech.

About ACTech GmbH

The ACTech GmbH headquartered in Freiberg/Saxony, is a leading provider of prototype manufacturing services for castings made of light metal, cast iron and cast steel alloys. The establishment of the enterprise in 1995 was based on a technology for rapid manufacturing of sand casting moulds – laser sintering of Croning® moulding material - , which was developed and granted an international patent. Combining various Rapid Prototyping technologies, ACTech achieved cost and time savings of up to 80% in comparison with conventional technologies. In addition to prototyping, castings can be – if desired by the customer – also completely engineered, and spare parts are being produced more and more on demand according to the data record or – in the case of older designs – following the physical pattern. Equipped with the latest 3D CAD systems, tactile and optical 3D measurement, its own foundry laboratories for sand and investment casting, materials testing and casting testing equipment, as well as 16 CNC machining centres – mostly 5 axis centres, ACTech offers all the necessary conditions to quickly find individualized solutions – from the first concept in product development up to the complete ready-to-install prototype part.

ACTech may bank on (look back on) relationships with more than 1,200 customers from 36 countries (among them in the USA, Europe, India); the export share amounts to approximately 60 per cent. Mainly companies from the automotive industry, aeronautics, vehicle construction, power engineering, appliance industry, machine and plant construction are among the current ACTech customers; many of them have been (become) ACTech customers for more than 10 years. Since 2002, the ACTech quality management is certified according to the international standard ISO/TS 16949, and since 2012 additionally to the standard ISO 9001. About 400 employees manufacture annually approximately 15,000 casting prototypes with properties being close to that of serial parts.

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