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Sand silicon and special resin are mixed in a mixer.

The core is made by filling and pressing the amalgam in the moulds inside the core-box.

FOUNDRY

One of the things that makes VM stand out from most motoring industries that we've been to over the past years is their aluminium earth casting used for making parts for the engines made in the Czech Republic, and also for those made elsewhere, for third parties.

The casting process is fascinating and it is really worth spending a few words on it. The raw material is composed of aluminium ingots cast into an amazing "caldron" where temperatures reach about 650 °C. And very dangerous too, because the liquid aluminium looks cold assuming taking on a superficial innocuous colouring. Now on to the secret of casting, in particular earth casting, based on playing at assembling together formworks, boxes of cores and cores so to create a shape for the required part with all the spaces, and full parts at the right place.

In order to create an empty space in the finished part, when the aluminium is cast into the formworks, something must be placed in the space so that the molten aluminium does not go in, and that is what cores are for.

The silicon sand and resin are mixed together in a mixer: the compact amalgam is then placed and pressed into the same core-box (which is not the casting core-box), a box made of wood plastic or metal with the inside shaped so as to form the required shape.

At this point, the core is placed in the core-box. This too is made up of two halves made of special compact soil and the inside of which is hollowed out with wooden models that once removed leave the required hollow space.

The core forms the definitive hollow space, while the thickness of the finished part is given by the distance between the core and the soil in the form-box. Inside which you also have some important passages for allowing the smelted aluminium to enter and to get all the air out, so that no cracks or grain residues form.

The technique of earth fusion has several advantages. It is practically the only way to go about it when dealing with small series and today, it is used quite frequently in karting; the quality of fu-

sion may look porous on the surface but, actually the quality is really good, because the casting is carried out at atmospheric pressure, it is not compressed, and thus any risk of air bubbles, due to trapped residues of air or damage caused by cracks is eliminated. But, when requests increase other technologies must be applied.

Magic casting

Once the various parts that make up the core have been formed, they are laid out in the formbox, which is also made up of compact earth and made in 2 halves. You cast the aluminium, let it cool down, then the two halves to be thrown away (mono-use), are opened again and you take out the rough part, complete with other elements, vents, carrying capacities and feedhead, but the heart, in this case, a cylinder is born complete with transfer ducts and exhaust and with gap for cooling liquid.

