# DIE CAST REPORT

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# AUTOart is Introducing ABS

## Keeping Collecting Affordable.

*Author's Note: AUTOart president Jimmy Yee has provided us with his insight into the industry of producing 1/18 models, not only the challenges faced in keeping pricing affordable for collectors, but also some of the handicaps of using the diecast process, which is largely used by manufacturers to fulfil the demands of collectors wanting opening parts. As costs increase, new methods and materials are being experimented with, and it seems with great success. Mr. Yee provides an extremely good argument for a change in AUTOart's future production in using the next material of choice, plastic. It has many benefits in model car production, as Mr Yee explains. While many of us may associate plastic with cheapness and lesser quality, not any more: This is going to be the way of the future, and when a die cast metal base is used, you would almost never know.*

AUTOart is excited to announce the introduction of a new concept for the production of fine-scale model cars. Our latest innovation is ABS composite models made from a hybrid of different materials that have been selected and engineered to produce both the supreme finish detail and high value our collectors demand.

Injection-ABS composite material has shown itself to be an ideal material to form the body of a model car. Compared to the old body material, die cast zinc, injection, ABS composite material results in smoother surfaces and sharper bodylines. The openings for vents and holes are also reproduced more cleanly, and the panels can be much thinner when rendered in ABS composite material than in zinc alloy. That makes the finished body closer to the true scale gauge of real car bodies, which today are a mix of thin sheet metal and different kinds of plastic moldings.

AUTOart's move to a composite model comes as injection-ABS composite parts become more widely used in the production of modern full-scale automobiles. Fenders, tailgates, bumpers and body panels are now routinely made of ABS with different composition, and are just as durable, if not more so, than their metal counterparts. Plus, ABS components will never corrode. Even the chrome-plated trim pieces we see on modern car interiors, including door handles that are pulled constantly are made of ABS. Composite bodies and structures are also becoming the norm in modern supercar manufacturing, and in every situation not only is the body lighter, the structural rigidity is even stronger than that of sheet metal.

*With AUTOart's composite models, the company pairs a die cast interior with a newly developed injection acrylonitrile butadiene styrene, a thermoplastic polymer with special blend of different materials for reinforcement, utilizing the benefits of both materials to create the highest quality models the company has produced.*

Though some model makers have turned to resin to replicate a body, we feel that ABS, with correct blending of reinforcement materials including a die cast metal chassis, has many benefits over resin, especially in the reproduction of fine details. Resin models can be fragile, breaking or deforming easily when they are not handled with care. That's because resin doesn't flex like ABS, nor is it as rigid as a die cast body. Because of these weaknesses, resin models are mostly made as sealed bodies with no openings. Some recent resin models with opening doors and

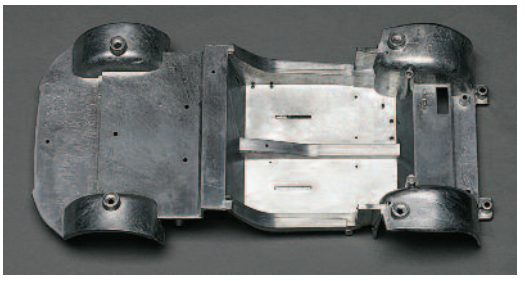
bonnets demanded a very high price, because the producer has to make some parts of the body in ABS rather than resin. That's because resin is brittle and breaks easily and it is not possible to install the small hinges that movable panels require without risking a failure after just a few openings and closings.

AUTOart also discovered in substituting ABS composite for die cast zinc that the common quality issue of air bubbles, so-called 'zinc pest,' on the paint surface of a die cast metal body, caused by trapped air during the casting process, is rarely a problem. ABS doesn't trap hot gasses as easily during the injection process, and that cuts the scrap rate of painted bodies.

AUTOart's composite models differ from the usual low-cost plastic and resin model cars seen on the market, which have sealed bodies. AUTOart's composite models are not sealed, but have a full array of working panels, including doors on all models and engine hoods on many.

Replicating opening doors and hoods on a composite model has been a challenge for AUTOart's engineers, because a body made of ABS, despite being blended with reinforcing material, is generally not rigid enough. It tends to flex and deform under twisting or compression. If such a model is made featuring opening doors, the doors will pop loose under flexing and they will not close properly once the body is slightly deformed. This is the reason why low-cost plastic model cars are traditionally made without opening doors and hoods.

*AUTOart's unique design for its next generation of model cars, which combines the benefits of composite bodies with die cast zinc interiors, is patent pending.*



*The average weight of the composite models with their die cast interiors is not much less than the weight of a zinc alloy die cast body model car. In other words, the composite model feels as good in-hand.*

In order to make the whole composite body rigid enough, we pair it with a die cast interior that is designed to support the body in all the areas that need to be strengthened. With a metal interior, the whole composite body becomes rigid, which is no different to the concept behind a die cast metal body and even many real cars.

The reinforced composite body will not flex easily and it will never deform, and doors and hoods will always open and close in the same position. Also, as a bonus, the finished model's door gaps are finer when rendered in composite material than in die cast zinc.

The concept of an internal structure is very much inspired by modern supercars, in which a very rigid carbon fibre tub supports all of the external lightweight bodywork. Other than the rigidity issue with ABS composite, which AUTOart has overcome with its mix of materials. When compared to die cast zinc a composite structure is better in almost every aspect when making a model.

When the composite model is finished and compared to the older replicas, most collectors cannot tell that the body is made of composite material unless they look closely at the body lines, creases, and other openings, which are even sharper. **HM**