

# Global market review of door modules – forecasts to 2013

2007 edition



*Just-auto*

# **Global market review of door modules – forecasts to 2013**

by Matthew Beecham

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# Preface

## Research methodology

This report is intended to provide an overview of automotive door modules, providing top level market fitment, volume and value forecasts through 2013. Our forecasts are not extrapolative but dependent on the underlying drivers of supply and demand. Our forecasts are largely based on interviews with the author's extensive international network of industry contacts. This allows us to consider and explain the meaning and implications of industry events, rather than offer simple description based on incomplete data.

Our approach is divided into two distinct methodologies:

- qualitative interviews – these are generally opinion-based, which aim to build knowledge about future door module market trends and company strategies; and
- quantitative interviews – typically fact-based, focused on establishing market values, shares, and volumes.

## Report coverage

In this, the fourth edition of this report, just-auto reviews the key market drivers for door modules, and updates the market analysis. Following our market overview in Chapter 1, just-auto's product fitment forecasts in Chapter 2 predict the market (by volume and value) worldwide (and by major car-producing region) for door modules. This chapter includes two exclusive Q&As with senior executives from ArvinMeritor and Magna Closures, providing unique and timely insight into the European and North American door module markets. Chapter 3 sets out a review of recent innovations in this arena while chapter 4 provides brief profiles of the major manufactures, namely ArvinMeritor, Brose, Dura Automotive Faurecia, Grupo Antolin, Kuester, Magna Closures and Wagon.

## The author

Since 2000, Matthew Beecham has served as an associate editor for just-auto. He authors a range of global auto components' market research reviews, including batteries, braking systems, coatings, clutches, cockpits, driver

assistance systems, door modules, electric motors, engine cooling systems, exhaust systems, front-end modules, fuel injection, fuel tanks, glass, interiors, lighting, mirrors, roof systems, shock absorbers, spark plugs, rotating electrics, tyre pressure monitoring systems, tyres, wheels and wipers. Matthew has also written a number of features for magazines including *Car Graphic* (Japan), *JAMA* (Japan) and *Automotive Engineer* (UK). He earned his PhD in automotive technology transfer at Cranfield University.

# Chapter 1 Introduction

Vehiclemakers are increasingly outsourcing their requirements for larger complex modules and systems, including doors. Broadly speaking, this trend toward modularisation is the result of a number of factors, including:

- The cost savings achieved as a result of taking advantage of an outside supplier's lower variable costs, simplifying the vehicle assembly process and reducing the manufacturer's overall fixed cost investment. For example, Brose believes that a move to door modules could save the vehiclemaker up to US\$xx per car, although the actual savings will vary according to the processes, materials and the level of integration already in place.
- The increased sophistication and capability of interior suppliers in programme management and logistics and product styling, design, assembly and testing. For example, Faurecia estimates that when a vehiclemaker moves from conventional door assembly to door modules, the time to assemble the door falls from about xx minutes to just five minutes because only one element has to be assembled, as opposed to ten. Above all, the OEM can combine a number of components into one, fully-tested assembly. There is also a health and safety advantage since assembly-line workers no longer need to reach through sheet metal to route all the cables.

In outsourcing a door module, a vehiclemaker could typically gain in the region of x-xx% weight savings, xx% for parts and xx-xx% in cost savings. Of course, the actual cost saving depends on the vehicle programme and materials used in the module, i.e. a steel door module carrier is typically cheaper than a plastic one.

In an exclusive interview with just-auto, Kurt Sauernheimer, head of Brose's door business, said: *"The biggest challenges this year come from two sources. On the one side, we face tremendous price pressure from our customers. On the other, we continue to see a steady increase in raw material costs. That is very difficult to manage. We are still under negotiation with our customers and suppliers to close the gap as good as possible."*

## Chapter 2 The market

### Market players

Most of the major suppliers pitching for door module business have their origins in either window regulators or plastic interior trim. For example, ArvinMeritor, Brose, Dura Automotive, Grupo Antolin and Kuester all have a strong tradition in the window regulator business.

### ArvinMeritor

ArvinMeritor's door systems product range includes: access control systems; door modules; electric motors; electronics; and window regulators. The company's Door Systems group operates xx different facilities in xx countries. In late 2006, ArvinMeritor's Light Vehicle Systems business formed a joint venture with Pyeong Hwa Automotive (PHA) for the final assembly of fully-integrated door modules for Kia Motors Corp's new facility in Slovakia. ArvinMeritor and PHA also have various licence and supply agreements for door module design and parts for Hyundai Motor Co in South Korea and the US.

### *Q&A with ArvinMeritor's Door Systems group*

In July 2007, Matthew Beecham talked to Jean-Marc Belmond, Director of Product Engineering, Door Systems and Mark Lawrie, Chief Engineer for Door Products, Door Systems, ArvinMeritor.

### **j-a: What are the biggest challenges for ArvinMeritor's Door Systems group in 2007?**

**ArvinMeritor:** The biggest challenges facing ArvinMeritor's Door Systems group for the forthcoming year are to accelerate the development of our Low Energy Release (LER) latch to meet our internal and customer deadlines; launch the Highly Integrated Plastic (HIP) door module and the New Electronic Motor (NEM) product; and to manage the numerous projects coming online in emerging markets. Additionally, we have new facility launches on the horizon and still face the same issues as all automotive suppliers to maintain and grow product robustness in the face of ever increasing price pressure from the OEMs.

## Chapter 3 Technical review

### Defining the elements

It may not look like it, but the door is one of the most complex systems on a vehicle. It must look good, incorporate crash stability and, above all, be fit for the purpose, typically opening and closing more than xxxxxx times during the vehicle's life.

Automakers are increasingly outsourcing their requirements for larger complex modules and systems, including doors. A door module typically consists of a rubber-sealed carrier plate made from plastic or metal. A variety of door components – such as the window lift mechanism, locks, electric motor to operate the wing mirror, wiring harness, various switches, loudspeaker and a cable that connects the latch to the inner release handle – are then fitted onto the carrier, forming a 'cassette'. The carrier plate is then tested and sealed to the outer door.

Indeed, Faurecia points out that the door is unique in that it is part of both the interior and exterior of the vehicle, and must meet a wide variety of end-user needs. The company states: *“Door design and manufacture must take into account integration into the bodywork and respect the vehicle's visual, safety and ergonomic imperatives. Like the other parts of the cabin, the door must also meet the vehicle maker's specifications in terms of perceived quality and weight, in addition to sealing tightly when shut.”*

The trend in both Europe and the US is toward increasing complexity of the door componentry, adding more electronic functions and, in some cases, the glass itself. We are seeing more and more integration of door hardware parts. We believe that design and styling changes at this level will have a direct influence on the content level, role and future of door modules.

Door systems with functional carriers made of steel can be used in different car models. They play an important role in enhancing the strength of the door and subsequently crash safety. On the other hand, plastic door carriers are being increasingly used. A door system with a fibreglass-reinforced plastic functional carrier integrates window regulator rails, loudspeaker frame, inner

## Chapter 4 Manufacturers

### ArvinMeritor

US-based ArvinMeritor's business activities are organised into two main operations: Light Vehicle Systems (LVS) and Commercial Vehicle Systems (CVS). The LVS business supplies emissions systems, aperture systems (roof and door systems) and undercarriage systems (suspension and ride control systems and wheel products) for passenger cars and light trucks.

ArvinMeritor Door Systems group is a major supplier of integrated door modules and systems, including manual and power window regulators and latch systems. Its power and manual door system products incorporate a number of technologies, including the company's proprietary electric motors with electronic function capabilities, including anti-squeeze technologies. More specifically, the door systems business product line-up includes a variety of window regulators and door modules such as arm and sector (cross-arm, single-arm and divergent), drum and cable (double-lift, single-lift and bare cable), push-pull (double-lift, single-lift and compact) and electronically-controlled motors. Its door modules feature power double-lift window regulators with anti-squeeze and super-locking actuators.

ArvinMeritor's Door Systems engineering group is organised into four centres of expertise, structured for systems integration and advanced product development. The group has dedicated R&D, engineering and test resources for each of its access control systems, electric motors, electronics, and door modules and systems disciplines.

The company also supplies manual and power-activated latch systems and window regulators to vehicle makers. Its access control products include modular and integrated door latches, actuators, boot (trunk) and bonnet (hood) latches and fuel flap locking devices. The company believes that it has a strong market position in Europe.

In a single year, ArvinMeritor produces some xxm manual and electric window regulators, xxm electric motors complete with advanced electronic functionality such as anti-squeeze and comfort closing, xxm access control systems for securing door, bonnet and boot apertures, and xm full door modules. These