

## Compact accident research

# An investigation into the availability of ESP in cars in 2009

Thomas Hummel  
Dr. Matthias Kühn

## **Imprint**

**German Insurance Association**

**German Insurers Accident Research**

Wilhelmstraße 43 / 43G, 10117 Berlin

PO Box 08 02 64, 10002 Berlin

email: [unfallforschung@gdv.de](mailto:unfallforschung@gdv.de)

Internet: [www.udv.de](http://www.udv.de)

Published: 04/2010

Editors: Thomas Hummel, Dr. Matthias Kühn

Lay-out: Franziska Gerson Pereira

Photo references: Insurers Accident Research and source references

---

## **Preliminary remarks**

---

At the beginning of 2009, for the fourth time, the UDV (German Insurers Accident Research) investigated which new cars in Germany are equipped with ESP (an electronic stability program) as standard, which vehicles only have ESP available as an option and which do not have it at all. This publication updates the previous investigations [1, 2 and 3] for the year 2009. The results are intended, above all, to help consumers decide which new car to buy, but they are also meant to encourage car manufacturers to equip all of their vehicles with ESP. The UDV has been making this demand for some time.

---

## Contents

---

Preliminary remarks	<b>2</b>
How ESP works	<b>4</b>
Different names used vor ESP	<b>4</b>
Potential benefits of ESP	<b>5</b>
Percentage of newly registered cars in Europe equipped with ESP	<b>5</b>
ESP-availability for new cars in Germany in 2009	<b>5</b>
Results for 2009 and comparison with the results for 2006	<b>7</b>
Demands and recommendations of the UDV	<b>10</b>
References	<b>11</b>
Annex 1	<b>12</b>
Annex 2	<b>15</b>

## How ESP works

By applying the brakes to wheels individually, as appropriate, and intervening in engine and transmission management, an ESP system prevents a vehicle from skidding. To enable the ESP system to respond to critical driving situations, a microcomputer continuously compares the driver's input with the car's driving status. The steering angle sensor indicates the direction in which the driver intends to go, and the engine management system, wheel-speed sensors and yaw-rate sensor supply signals that indicate the vehicle's behavior. If a discrepancy is

discovered between the calculated driving status and the driver's input, the ESP system intervenes within fractions of a second.

## Different names used for ESP

Car manufacturers use a variety of different names and abbreviations for systems that control vehicle stability electronically (Figure 1). All these systems basically work in the same way, although they may differ in design or in the additional functions they offer (such as correction of the steering angle or trailer stabilization for vehicles with a trailer).

<ul style="list-style-type: none"> <li>▪ <b>ESP - Electronic Stability Program</b> Audi, Chrysler, Fiat, Kia, Mercedes, Opel, Peugeot, Skoda, VW and others</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>DSC - Dynamic Stability Control</b> BMW, Jaguar, Land Rover, Mazda</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>DSTC - Dynamic Stability &amp; Traction Control</b> Volvo</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>MASC - Mitsubishi Active Stability Control</b> Mitsubishi</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>PSM - Porsche Stability Management</b> Porsche</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>Stabili Trak - Vehicle Stability Enhancement System</b> Cadillac</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>VDC - Vehicle Dynamic Control</b> Alfa Romeo, Subaru</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>VSA - Vehicle Stability Assist</b> Honda</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>VSC - Vehicle Stability Control</b> Daihatsu, Lexus, Toyota</li> </ul>

Figure 1: Different names used for ESP

## Potential benefits of ESP

The effectiveness of ESP has been confirmed by numerous national and international studies. The UDV's investigations [4] reveal that ESP could have a positive impact on 25 percent of car accidents involving personal injuries and at least 35 percent of car accidents involving fatalities.

If these findings are applied to the accidents involving one or more cars recorded in the official statistics for the year 2007, taking into account that in 2007 36 percent of all cars were equipped with ESP, around 21,000 such accidents involving personal injury and around 400 involving fatalities could have been prevented or their effects mitigated by ESP.

## Percentage of newly registered cars in Europe equipped with ESP

In Germany, 81 percent of all newly registered cars are currently equipped with ESP. Together

with Sweden (98 percent), Germany is far ahead of other European countries in this respect (Figure 2) and far above the European average, which is 55 percent [5].

However, although Germany is a leading adopter of ESP in Europe, the situation cannot be considered to be satisfactory because, as things stand, only around 42 percent of all cars registered in Germany are equipped with ESP [5].

## ESP-availability for new cars in Germany in 2009

In January and February 2009, the UDV collected information on ESP-availability for new cars in Germany. The research was carried out primarily on the internet. A total of 296 model ranges of 38 marques available on the German market were included (see Figure 3).

Within each model range (e. g. Renault Twingo), the availability of ESP was ascertained for each model variant, taking into account the

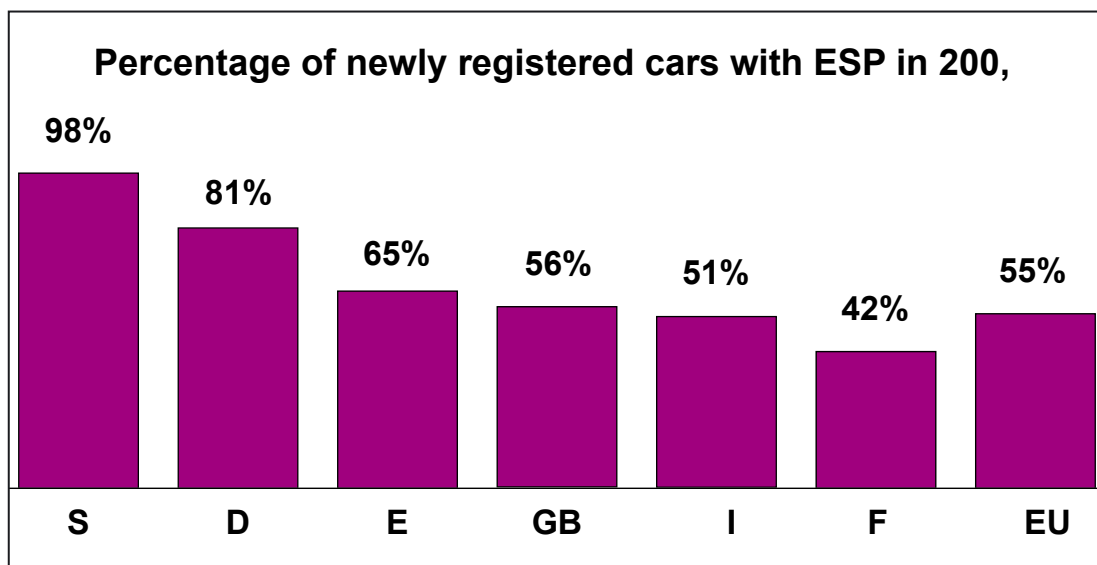


Figure 2: Percentage of newly registered cars with ESP in 2008 (Source: Bosch)

List of the 38 car manufacturers in the investigation		
Alfa Romeo	Jaguar	SAAB
Audi	Jeep	SEAT
BMW	Kia	Skoda
Cadillac	Lancia	Smart
Chevrolet	Land Rover	Ssang Yong
Chrysler	Lexus	Subaru
Citroen	Mazda	Suzuki
Dacia	Mercedes	Toyota
Daihatsu	Mitsubishi	Volkswagen
Dodge	Nissan	Volvo
Fiat	Opel	
Ford	Peugeot	
Honda	Porsche	
Hyundai	Renault	

Figure 3: Car manufacturers

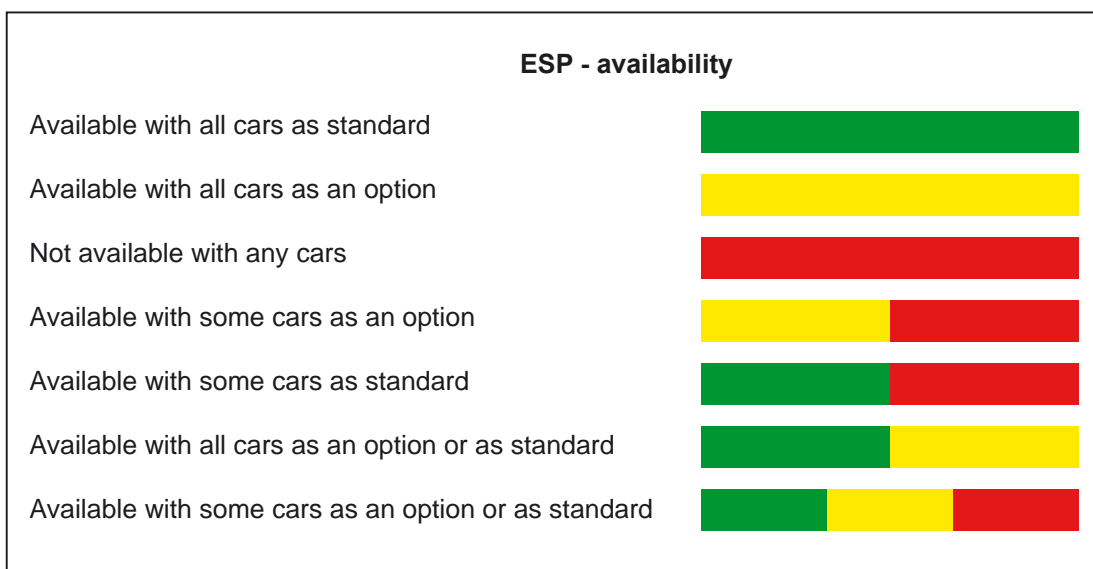
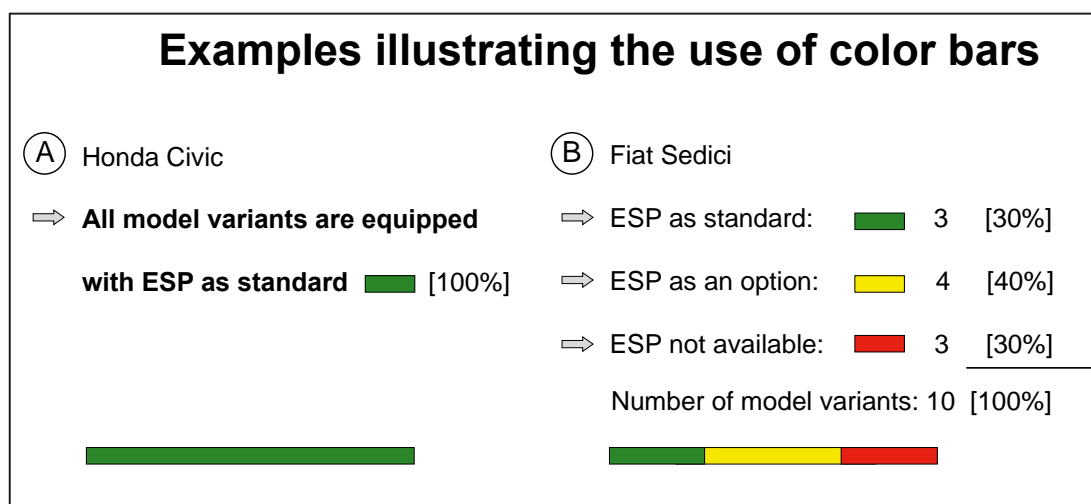


Figure 4: ESP-availability

engine (e. g. 1.3/ 43 kW) and trim level (e. g. “Expression”). The availability of ESP in a model range was indicated by means of three colors (green, yellow and red) as follows:

- Green: ESP available as standard
- Yellow: ESP available as an option
- Red: ESP not available



**Figure 5: Examples illustrating the use of color bars**

If all the variants in a model range are equipped with ESP as standard, the whole color bar for this model range is green. If they all have ESP available as an option, the whole bar is yellow, and if none of the variants is equipped with ESP, the whole bar is red. There are also model ranges in which some variants are equipped with ESP as standard, others have ESP available as an option, while ESP is not available at all for some variants. In such cases, the color bar has two or three colors, as shown in Figure 4. Two typical examples are shown in Figure 5.

ESP-availability was recorded in two lists for all 296 model ranges: by manufacturer (see Annex 1) and by vehicle category and manufacturer (see Annex 2). The vehicle categories defined by the Kraftfahrt-Bundesamt (German Federal Motor Transport Authority) [6] were used. These ten vehicle categories and ESP-availability within these categories are shown in Figure 6.

Before the results were published, they were made available to the car manufacturers, who were asked to check them. Any comments they made were taken into account in the description of the results.

## Results for 2009 and comparison with the results for 2006

The percentage of model ranges equipped with ESP as standard has steadily increased in recent years (Figure 7), reaching 72 percent for 2009 models (2006: 58 percent; 2007: 64 percent; 2008: 67 percent). However, the percentage of model ranges with no ESP availability at all has remained static at 9 percent (the same as 2008). In the view of the UDV, this lack of progress is very regrettable. It means there are still 26 model ranges in Germany that are not equipped with a life-saving ESP driver assistance system (Figure 8). In addition, there are 15 model ranges in which not a single model variant is equipped with the required anti-skid system as standard. In the very small car segment, there are still only two out of 17 model ranges that have ESP as standard (the Smart and the Toyota IQ). Moreover, 10 model ranges in this vehicle category do not offer a single model with ESP as standard. The UDV accident researchers believe that a strategy of making consumers pay extra for ESP is wrong. Buyers of small cars are rarely prepared to pay 300 euros or more for this safety feature. For instance, only about two of every 100 Peugeot 206 bu-

Vehicle category	ESP available as standard		ESP optional		ESP not available		ESP available with some cars		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Very small cars	2	12	4	23	2	12	9	53	17	100
Small cars	8	27	2	7	4	13	16	53	30	100
Compact cars	30	75	0	0	4	10	6	15	40	100
Midrange cars	33	92	0	0	0	0	3	8	36	100
Upper midrange cars	15	100	0	0	0	0	0	0	15	100
Luxury cars	12	100	0	0	0	0	0	0	12	100
MPVs	36	92	0	0	1	3	2	5	39	100
Utility vehicles	5	24	0	0	8	38	8	38	21	100
Off-road vehicles	51	80	0	0	6	9	7	11	64	100
Sports cars	20	90	0	0	1	5	1	5	22	100

Figure 6: ESP-availability in the vehicle categories of the KBA (German Federal Motor Transport Authority) in 2009

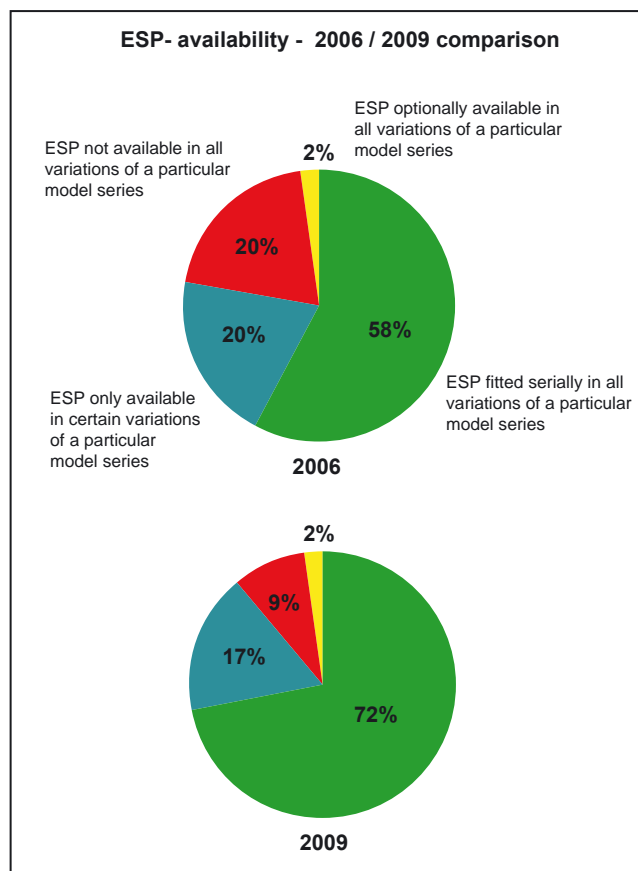


Figure 7: ESP-availability - 2006 / 2009 comparison

yers ordered ESP as an option in 2008 [7], and for the VW Fox it was 11 out of every 100 [8]. The decision for or against ESP should therefore not be left to the consumer, and all cars should be equipped with ESP as standard, thus relieving car buyers of this decision. Instead, ESP is not expected to be made mandatory in Europe for new model ranges until November 2011 and for all new cars until November 2014. Consumers who want to play safe when

buying a car can get information on ESP-availability for different car models from the UDV website ([www.udv.de](http://www.udv.de)). You can search the database (last updated on March 13, 2009) not just for the manufacturers and model ranges of all new cars for the years 2006 to 2009 but also for individual models. There is also a list showing ESP-availability for older models (under the “ESP-Gebrauchtwagenliste” link). This is important, above all, for buyers of used cars.

<b>Model ranges without ESP (as at March 13, 2009)</b>		
<b>Marque</b>	<b>Model range</b>	<b>Vehicle category</b>
Chevrolet	Matiz	(Very small car)
Chevrolet	Aveo	(Small car)
Chevrolet	Lacetti	(Compact car)
Chevrolet	Nubira	(Compact car)
Chrysler	PT Cruiser	(MPV)
Citroen	Berlingo First	(Utility vehicle)
Dacia	Logan	(Compact car)
Dacia	Sandero	(Compact car)
Daihatsu	Cuore	(Very small car)
Daihatsu	Copen	(Small car)
Dodge	Viper	(Sports car)
Fiat	Doblò	(Utility vehicle)
Ford	Ranger	(Off-road vehicle)
Ford	Turneo	(Utility vehicle)
Land Rover	Defender	(Off-road vehicle)
Mazda	BT 50	(Off-road vehicle)
Nissan	NP 300 Pick Up	(Off-road vehicle)
Nissan	Patrol	(Off-road vehicle)
Nissan	Navara	(Utility vehicle)
Opel	Combo	(Utility vehicle)
Peugeot	Partner Origin	(Utility vehicle)
Renault	Clio Campus	(Small car)
Renault	Kangoo Campus	(Utility vehicle)
Subaru	Justy	(Small car)
Suzuki	Jimny	(Off-road vehicle)
Toyota	Hiace	(Utility vehicle)

**Figure 8: Model ranges without ESP**

---

## **Demands and recommendations of the UDV**

---

The studies carried out both nationally and internationally on the effects of ESP have unanimously found that ESP can offer great benefits. All cars – regardless of price segment and vehicle category – should therefore be equipped with ESP as standard. That means not just in Germany but also in Europe and ultimately the rest of the world. ESP should never be offered only in conjunction with expensive trim levels. Buyers of used cars should also make ESP an important consideration. Dealers should point out how necessary it is for both new and used cars to be equipped with ESP.

The information provided on the availability of ESP, the new option of searching for cars with ESP on the Internet and the UDV campaign “[www.schutzengel-esp.de](http://www.schutzengel-esp.de)” help consumers with their decision-making when buying a new car. If you choose a car from a model range that does not have an entirely green color bar (indicating ESP is available as standard with all cars), you should exercise caution and make sure the car you want really is one of those that has ESP.

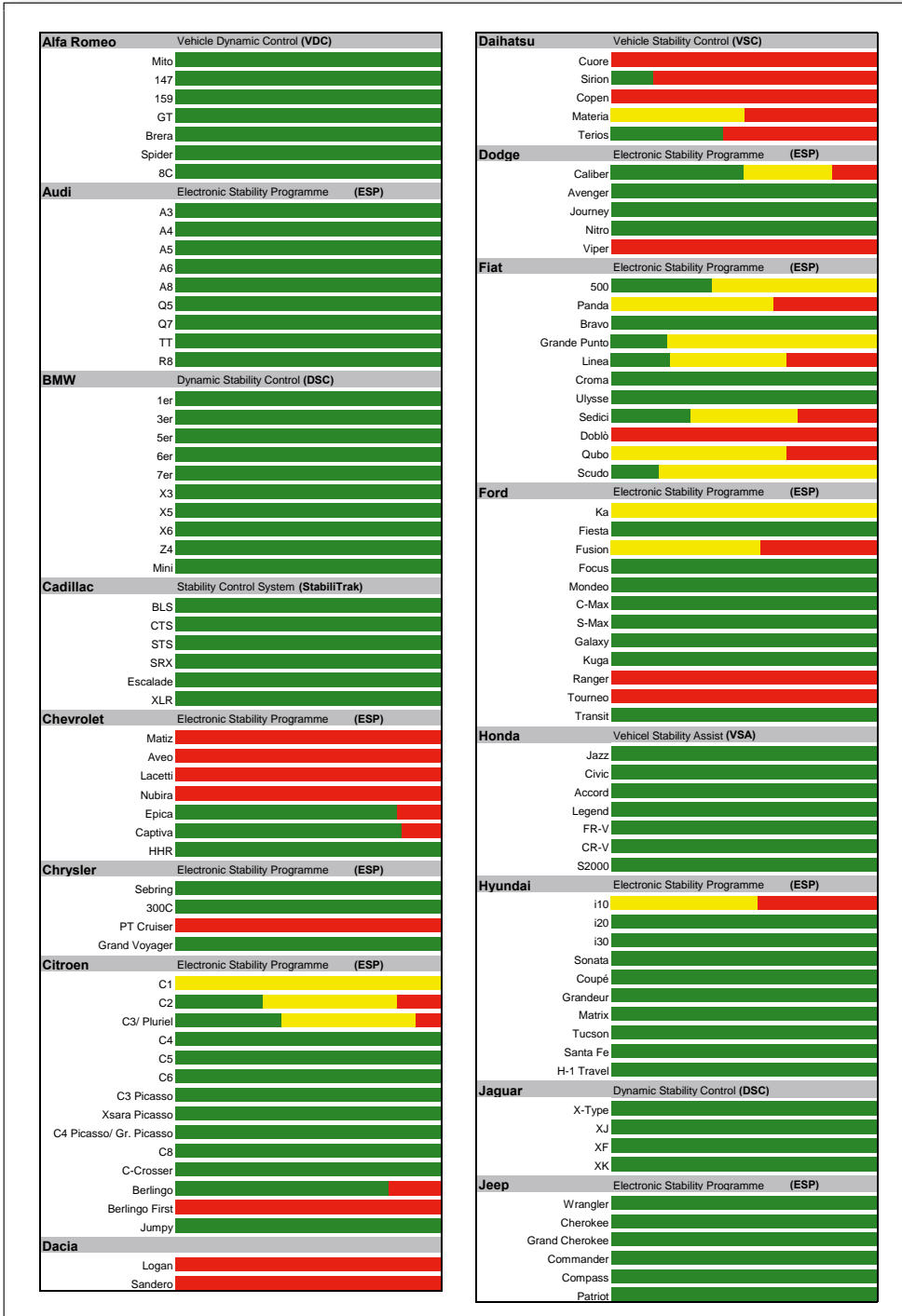
---

## References

---

- [1] Hummel, Th., Kühn, M. (2006). Untersuchung zur Verfügbarkeit von ESP in Pkw 2006 (An Investigation into the Availability of ESP in Cars in 2006). GDV, German Insurers Accident Research (UDV). Berlin.
- [2] Hummel, Th., Kühn, M. (2008). Untersuchung zur Verfügbarkeit von ESP in Pkw 2007 (An Investigation into the Availability of ESP in Cars in 2007). GDV, German Insurers Accident Research (UDV). Berlin.
- [3] Hummel, Th., Kühn, M. (2008). An Investigation into the Availability of ESP in Cars in 2008. GDV, German Insurers Accident Research (UDV). Berlin.
- [4] Langwieder, K., Gwehenberger, J., Hummel, T., Bende, J. (2003). Benefit Potential of ESP in Real Accident Situations Involving Cars and Trucks. ESV Paper No. 150. 18th ESV Conference, Nagoya (Japan).
- [5] Bosch (2009). Internal BOSCH communication documents.
- [6] Kraftfahrt-Bundesamt (Federal Motor Transport Authority) (2009). Neuzulassungen von Personenkraftwagen im Dezember 2008 nach Segmenten und Modellreihen (Newly Registered Cars in December 2008 by Segment and Model Range).
- [7] Peugeot (2009). Internal Peugeot communication document.
- [8] Volkswagen (2009). Internal VW communication document.

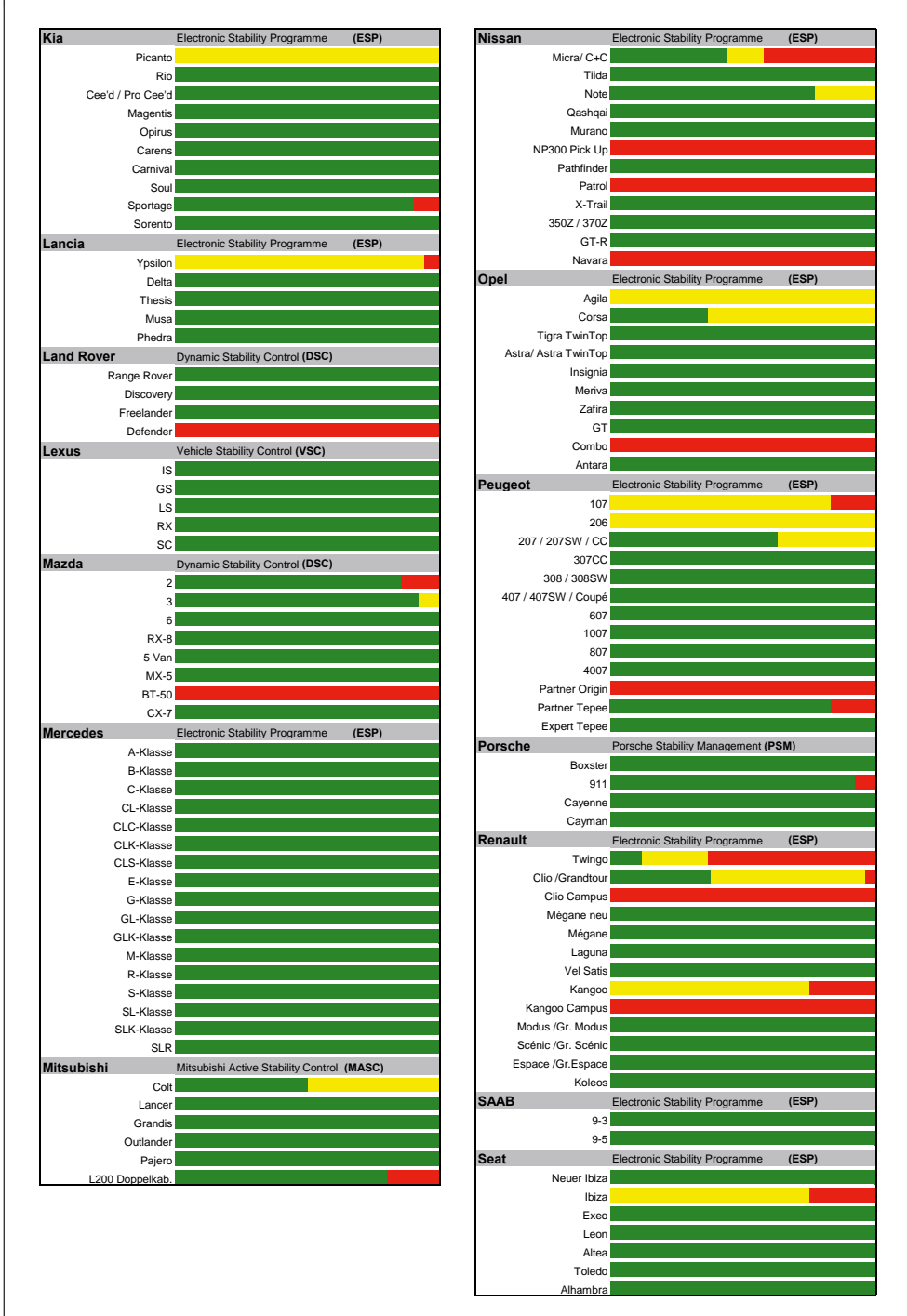
## ESP-availability according to manufacturer



ESP serially
  ESP only optionally available
  ESP not available

Source: GDV / Effective: 13.03.2009

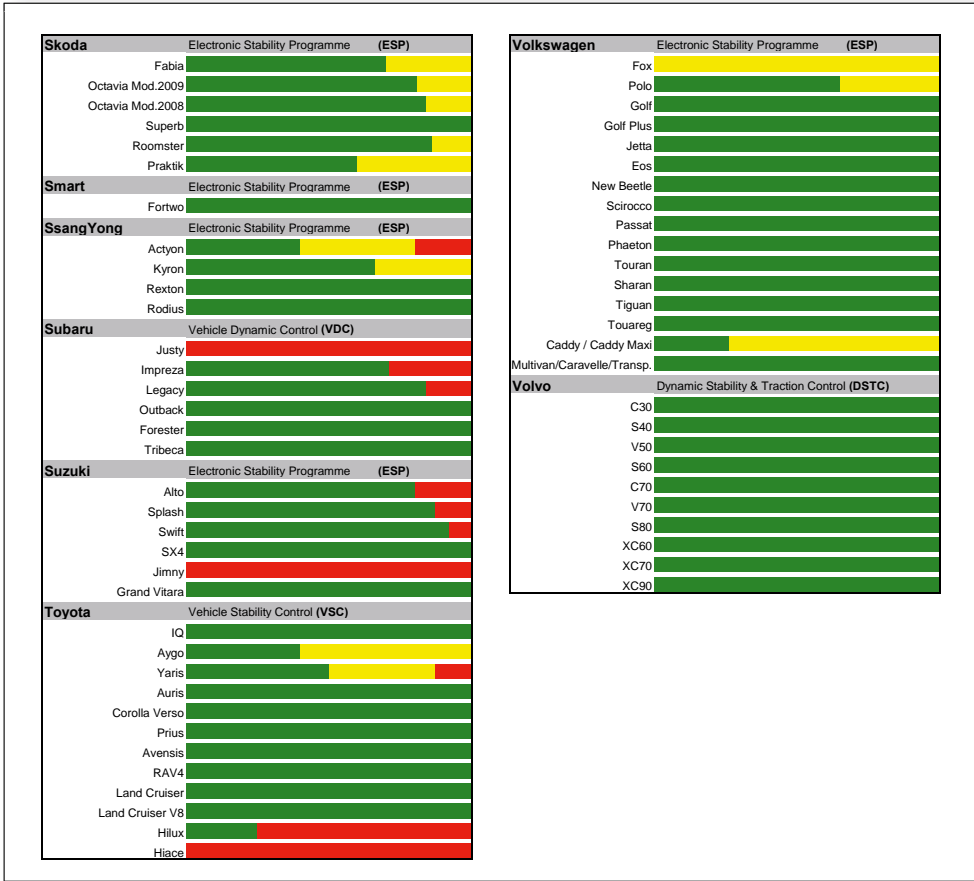
## ESP-availability according to manufacturer



ESP serially
  ESP only optionally available
  ESP not available

Source: GDV / Effective: 13.03.2009

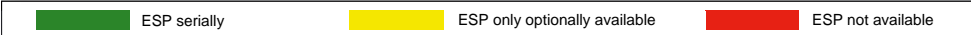
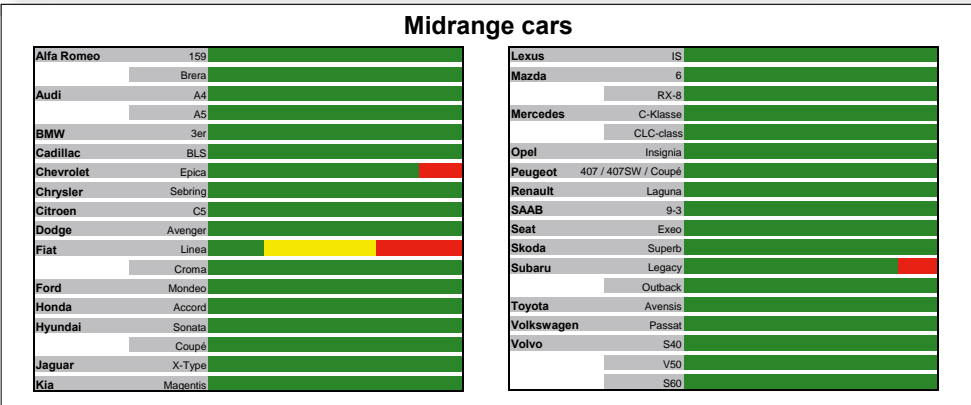
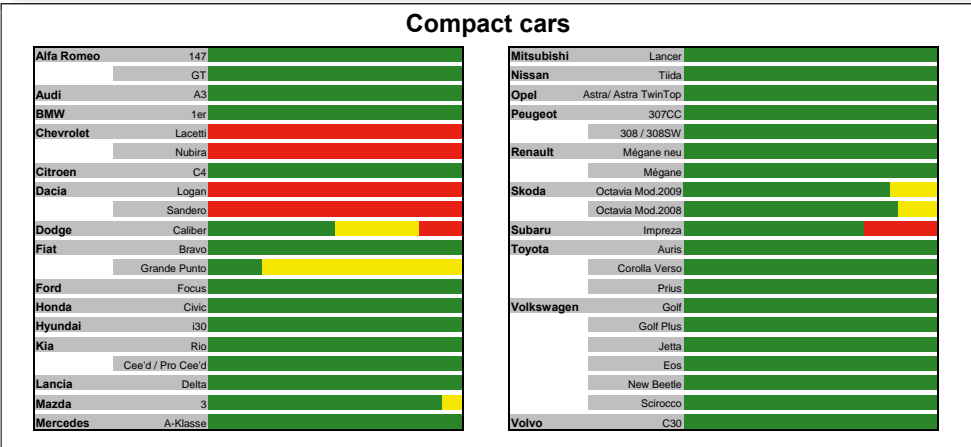
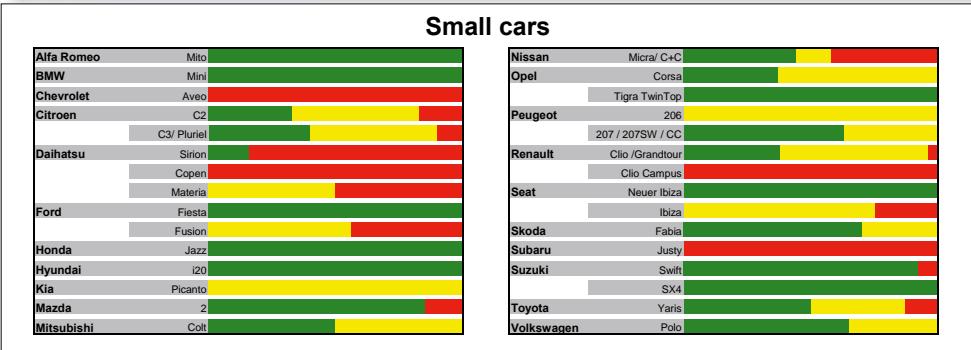
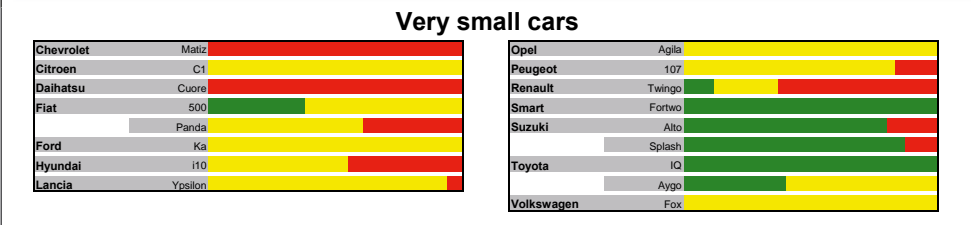
## ESP-availability according to manufacturer



ESP serially
  ESP only optionally available
  ESP not available

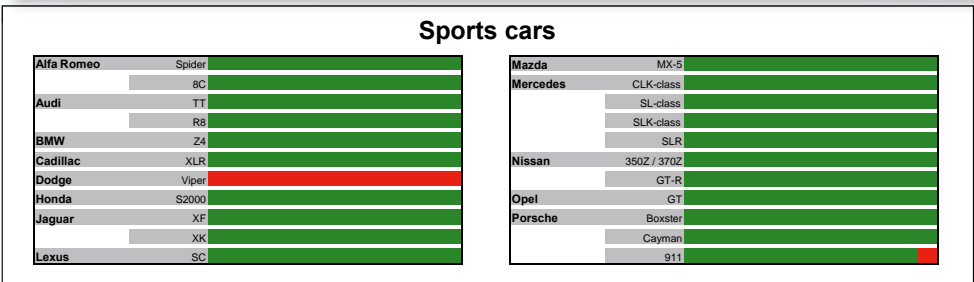
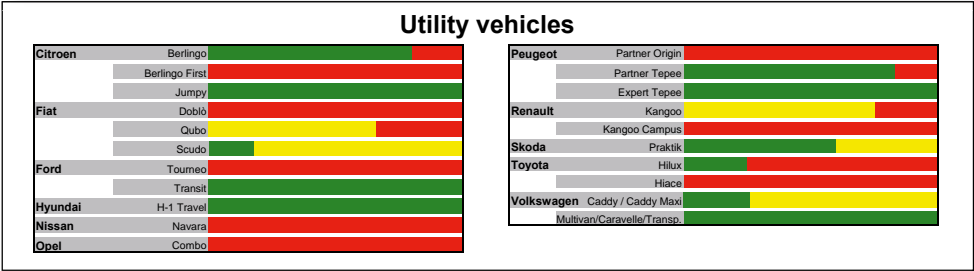
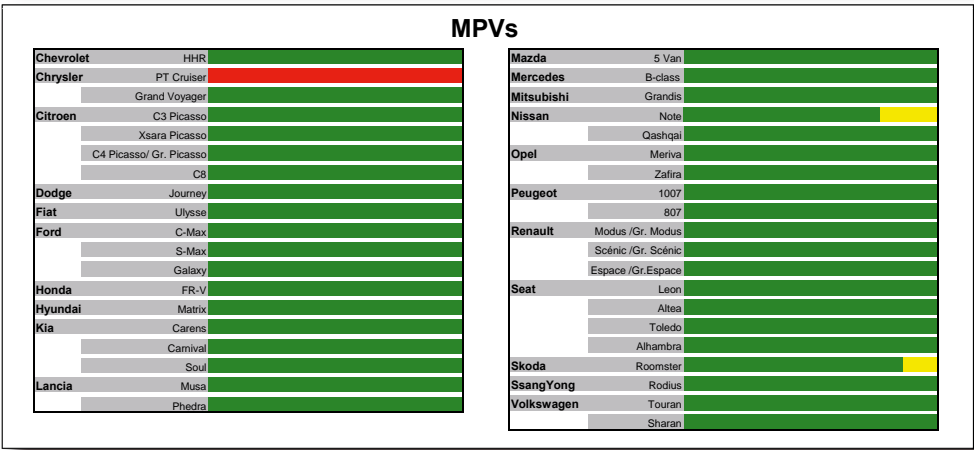
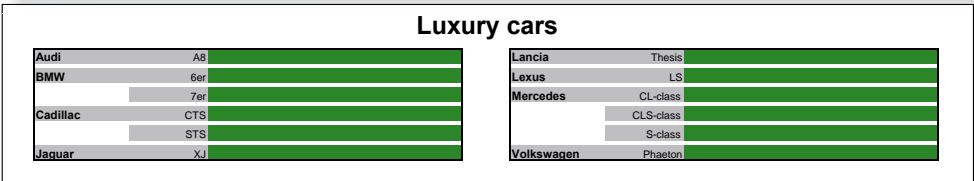
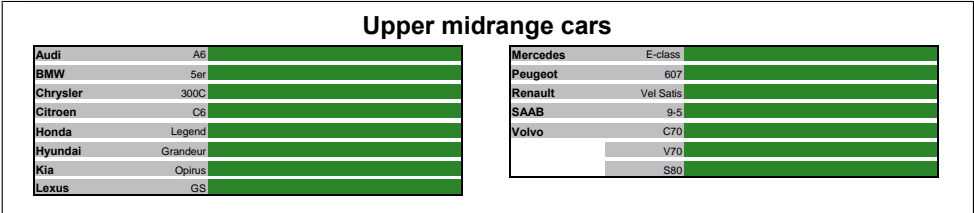
Source: GDV / Effective: 13.03.2009

## ESP-availability according to vehicle category



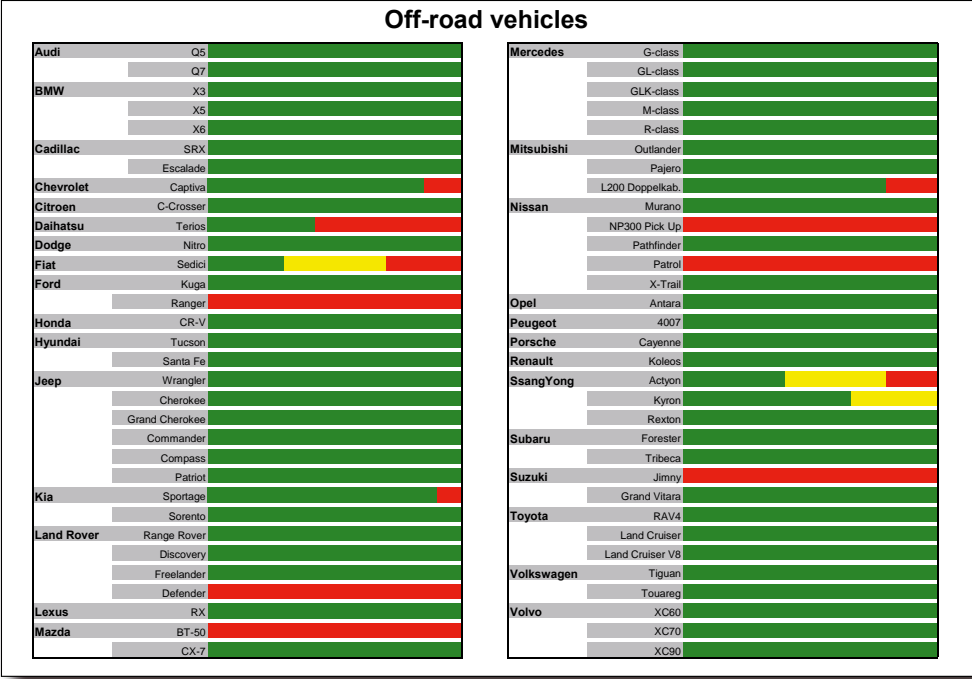
Source: GDV / Effective: 13.03.2009

## ESP-availability according to vehicle category



Source: GDV / Effective: 13.03.2009

## ESP-availability according to vehicle category



Source: GDV / Effective: 13.03.2009



**German Insurance Association**

Wilhelmstraße 43 / 43G, 10117 Berlin  
PO Box 08 02 64, 10002 Berlin

Phone: +49 30 2020-5000, Fax: +49 30 2020-6000  
Internet: [www.gdv.de](http://www.gdv.de)