

4th Edition



Automotive Textiles Market Report

An industry in flux – from Motor City to Silicon Valley



Adrian Wilson

From the publishers of
mobileTex

Automotive Textiles

An industry in flux – from
Motor City to Silicon Valley

4th edition September 2016

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Introduction

It will quickly become evident that there have been tremendous changes to the global structure of the automotive textiles industry since the last edition of this report was published in 2013.

Over the past three years there has been unprecedented consolidation among manufacturers of both fabrics and finished components for automotive interiors, not least among the Tier 1 suppliers to the original equipment manufacturers (OEMs).

Among the most notable changes are:

- Johnson Controls merged its automotive interiors business with China's Yanfeng to form a new company, Yanfeng Automotive Interiors;
- Visteon broke up its Interiors business, with the major share of it also being taken over by Yanfeng as Yanfeng Automotive Trim Systems;
- following the above two transactions, Yanfeng has quickly risen to sixth place in the top 10 of Tier 1 automotive suppliers with textile activities, based on pro forma 2015 sales – a first for a Chinese majority-owned company;
- Magna International sold its automotive interiors business to Grupo Antolin;
- ZF Friedrichshafen acquired TRW Automotive;
- Italy's Adler Plastics took full ownership of the HP Pelzer Group;
- Aunde acquired FS Fehrer.

Table 1 shows how these changes have altered the rankings by turnover of the leading top 16 companies, with certain rounded estimates where no detailed financial figure is provided.

The June 2016 merger of Michigan, USA-based Key Safety Systems with China's Ningbo Joyson Electronic (page 211) was announced too late to be included in this Table, but also creates a new global leader with annual sales of more than US\$3bn and 20,000 employees worldwide; this would rank it in 12th place in 2016.

What will also become clear from considering the performances of many of the leading companies profiled is that while turnovers have returned to levels comparable to before the global recession of 2008-09, much of the profitability in supplying to the automotive OEMs has been driven upwards and is now being retained with the carmakers themselves.

The key issue that has driven such change was initially the ongoing shift in mass vehicle manufacturing centres from the US, Europe and Japan to developing countries, notably China and Asia-Pacific, and to lower cost regions within Europe.

Between 2007 and 2009, automotive industry production in North America and Europe experienced the steepest peak-to-trough declines in history. In North America, vehicle production fell by more than 40% – from a high of 15m units in 2007 to a low of 8.6m in 2009. In Europe, industry production also declined by more than 20%, from 20.2m units in 2007 to 15.6m in 2009.

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Introduction

Table 1: Leading Tier 1 manufacturers with textile solutions and technologies, 2012 and 2015

Rank	Company	Turnover 2012 (€bn)	Rank	Company	Turnover 2015 (€bn)
1	Magna International	24.0	1	Magna International	31.0
2	Faurecia	17.4	2	ZF TRW	29.2
3	Johnson Controls AE ¹	16.6	3	Faurecia	20.7
4	TRW Automotive	12.8	4	Johnson Controls AE ¹	18.1
5	Lear	11.3	5	Lear	16.4
6	Toyota Boshoku ²	9.39	6	Yanfeng ⁴	12.8
7	Autoliv	6.43	7	Toyota Boshoku ²	10.4
8	Visteon	5.33	8	Autoliv	8.26
9	Takata ²	3.74	9	IAC	5.31
10	IAC	3.65	10	Takata ²	4.78
11	Grupo Antolin	2.00	11	Grupo Antolin ⁴	4.00
12	Donaldson ³	1.94	12	Aunde	2.50
13	Tachi-S ²	1.99	13	Donaldson ³	2.14
14	Autoneum	1.58	14	Autoneum	1.95
15	Aunde	1.50	15	Tachi-S ²	1.87
16	HP Pelzer	0.48	16	Adler-Pelzer	1.18

¹ year to 30 September

² year to 31 March

³ year to 31 July

⁴ pro forma

Source: various; Credit Suisse (average foreign exchange rates 2012 and 2015)

As a consequence, the industry underwent major restructuring in response to overcapacity, narrow profit margins, excess debt and the necessary realignment of resources from mature markets to emerging ones.

The OEMs have sought to structure their operations so that a particular model of vehicle is the same wherever in the world it is produced – whether in North America, South America, Europe or Asia.

To achieve such standardisation – and to benefit fully from economies of scale – the OEMs have set up manufacturing operations in these regions with the aim of making them identical, or as similar as is possible. They have also sought to harmonise requirements and technology among their suppliers and to standardise supply chain procedures. Increasingly, the OEMs have demanded that chosen suppliers ship larger, finished component assemblies direct to their manufacturing plants.

In theory, their immediate suppliers, the Tier 1s, have exerted increasing power in the supply chain. In turn, Tier 1 suppliers have moved from relying on a network of regional suppliers to partnering with bigger companies down the supply chain that have more effective global operations.

The reality is something a little different, as illustrated by the car seat manufacturing companies, from whom much profitability has been driven over the past five years.

Increasingly, carmakers are making bulk orders of individual parts with different suppli-

Magna International

**Magna International Inc, 337 Magna Drive, Aurora, ON L4G 7K1, Canada.
Tel: +1 905 726 2462. Fax: +1 905 726 7164. Web: www.magna.com**

With sales of US\$34.4bn in 2015 and employing 139,000 people worldwide, Magna International, headquartered in Aurora, Ontario, Canada, was positioned the second largest of all Tier 1 automotive suppliers by turnover in the last rankings compiled by *Automotive News* for 2014 – behind only Germany’s Robert Bosch.

In a major shake-up, however, in August 2015 Magna completed the sale of substantially all of its interiors operations to Grupo Antolin, headquartered in Burgos, Spain, for US\$525m.

The transaction included 36 manufacturing operations and around 12,000 employees located in Europe, North America and Asia. Full year 2014 total sales for these operations were approximately US\$2.4bn. Magna’s seating business was not included in this transaction.

Table 8: Magna International, financial performance, 2007-2015

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sales (US\$bn)	26.1	23.7	16.9	23.5	28.7	30.8	34.8	36.6	34.4
Net income (loss) (US\$m)	663	71	(453)	1,003	1,015	1,433	1,545	1,880	1,946

Source: Magna International

Magna International develops and manufactures automotive systems, assemblies, modules and components in addition to engineering and building complete vehicles; at present the major share of its business remains in North America and Europe.

In 2016, its activities are broken down into the following eight business areas:

- Body and chassis systems;
- Exterior systems;
- Seating;
- Powertrain;
- Electronics;
- Roof systems and modules;
- Closure systems;
- Vision Systems.

Although it has continued to innovate in textile and interior-related technologies, these have been largely buried deep within the more general activities of its Seating business

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Magna International

and the Interiors operations that have been sold to Grupo Antolin.

Nevertheless, they have spanned:

- sidewall and trim systems:
 - interior garnish trim;
 - door and side panels;
 - package trays (parcel shelves);
 - liftgate (hatchback) trim;
- cockpit systems:
 - cockpit modules;
 - instrument panels;
 - glove boxes in multiple surface materials (soft, hard and grain options);
 - floor consoles;
- cargo management systems:
 - sliding and stationary load floors;
 - accessible floor storage bins;
 - multilevel shelf systems;
 - integrated cargo organisers;
- overhead systems:
 - complete overhead systems;
 - headliner substrates;
 - sun visors;
- overhead consoles:
 - grab handles;
 - lighting;
- carpet and load-space systems:
 - wheelhouse linings;
 - floor and trunk trim;
 - carpet;
 - acoustic countermeasures.

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An examination of former subsidiary Intier Automotive – founded by Magna in 1987, floated off as a stand-alone company in 2001 and reintegrated into the general company in 2005, when it was initially called Decoma International – provides a clearer picture of the company’s contribution to automotive textiles over the past 30 years.

Intier was primarily grown through acquisitions, notably of eight specialist European companies (Table 9), at a combined cost of US\$290.6m in the 1990s, and it continuously introduced new textile-related innovations to the market.

Sustainable materials

Sustainable materials have crept into Magna’s portfolio in recent years, including Cell-

Table 9: Intier Automotive, European acquisitions, 1995-1998

Date	Company	Purchase price (US\$m)	Products
June 1995	Eybl Durmont	34.5	Interior components and systems
April 1996	Marley Automotive Components	80.5	Instrument panels, consoles, door trim and seating components
May 1997	George Naher	35.5	Trunk linings, interior panels, carpet and sound insulation systems
May 1997	Tricom Group Holdings	51.1	Seating systems, frames and components
November 1997	Ymos Automotive Interiors	31.7	Instrument panels, consoles and interior components
February 1998	Roltra-Mors	30.0	Automotive components
March 1998	Paulisch	18.0	Complete seating systems and components
December 1998	Pal International	9.3	Electric motors, etc.

Source: Magna International

Form, a lightweight, high-stiffness sandwich load-floor that incorporates 100% post-consumer recycled paper honeycomb core. Additional bio-content is achieved by utilising plant oil-based polyurethane resin and natural fibre reinforcement layers.

The company has also introduced 5% BioFoam content into its headliners to achieve weight and cost savings, while maintaining dimensional performance and stability through thermal cycles.

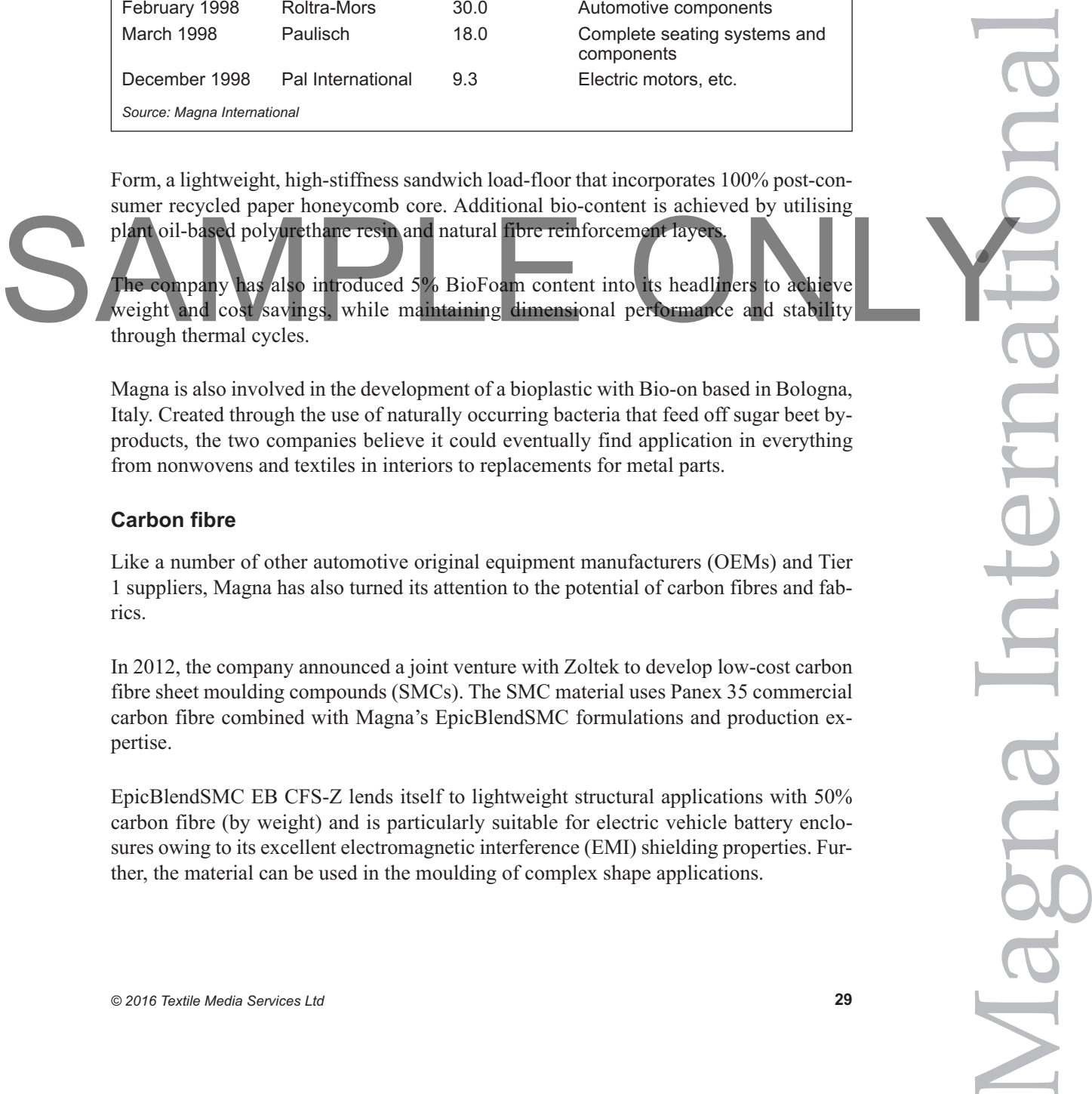
Magna is also involved in the development of a bioplastic with Bio-on based in Bologna, Italy. Created through the use of naturally occurring bacteria that feed off sugar beet by-products, the two companies believe it could eventually find application in everything from nonwovens and textiles in interiors to replacements for metal parts.

Carbon fibre

Like a number of other automotive original equipment manufacturers (OEMs) and Tier 1 suppliers, Magna has also turned its attention to the potential of carbon fibres and fabrics.

In 2012, the company announced a joint venture with Zoltek to develop low-cost carbon fibre sheet moulding compounds (SMCs). The SMC material uses Panex 35 commercial carbon fibre combined with Magna’s EpicBlendSMC formulations and production expertise.

EpicBlendSMC EB CFS-Z lends itself to lightweight structural applications with 50% carbon fibre (by weight) and is particularly suitable for electric vehicle battery enclosures owing to its excellent electromagnetic interference (EMI) shielding properties. Further, the material can be used in the moulding of complex shape applications.



Key Europe-headquartered Tier 2 suppliers

Carpets, insulation, filtration, airbags, seatbelts and other

Borgers

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Borgers celebrated its 150th anniversary in 2016 at a high point in its development, with a new sales record achieved for 2015 and the highest employee count in its history.

The company can claim to be one of the longest established suppliers of fabrics to the automotive industry – although the coaches it initially furnished with wadding material in 1866 were still horse-drawn, as opposed to horse-powered. It is also one of the oldest recycling companies, with shredded fibres from second-hand textiles and leftovers being the basis of founder Johann Borgers’ industrial felts and waddings.

By growing steadily, Borgers, headquartered in Bocholt in Westphalia, Germany, has developed into a strong supplier to the automotive industry, offering acoustically effective textile components from multiple plants, in addition to machines and tools at three further facilities.

The vast scope of the components it supplies is illustrated by the fact that the company has supplied more than 100 different versions of textile package trays for the Audi A8 alone.

The fifth-generation family-owned company had 7,016 employees at the end of 2015 – up from 5,237 a year earlier – and its annual turnover again reflects the turbulence of the recession years of 2008 and 2009, and the subsequent recovery of the automotive industry (Table 45). Recent expansion in both the US and China is in line with the general movement of the sector.

Table 45: Borgers, turnover, 2007-2015

(€m)	2007	2008	2009	2010	2011	2012	2013	2014	2015
Turnover	623	476	384	527	618	589	619	673	765

Source: Borgers

Automotive components now account for around 80% of the company’s sales, with engineering companies R+S Teknik and Olbrich responsible for the remaining 20%.

The acquisition by Borgers of the former AKsys Group in 2010 for €43m made a signif-

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Borgers

ificant contribution to the company's turnover. With this takeover, Borgers gained new manufacturing sites, primarily for polyurethane (PU) foam components, at Krumbach and Ellzee in Germany. In 2011, meanwhile, Borgers sold Gebrüder Rensing, a manufacturer of technical woven fabrics and protective workwear, to Setex Textil. Rensing had been part of the Borgers Group since 1982.

The European automotive sector's consolidation after the recession years allowed Borgers to gain further business – notably with Audi, BMW and Daimler – as a result of former competitors going out of business.

Establishing a base in China, the world's fastest growing car manufacturing country, was almost inevitable for the company as a next major step, and in 2012 Borgers opened its first plant in this country: Borgers Tuopu Automobile Parts, in Beilun, Ningbo, makes textile trim components.

The following year a second plant was established in Langfang, Hebei, to supply Triflex trim and carrier components for Mercedes-Benz.

In 2014, Shenyang Borgers Tuopu Automobile Parts became the third Borgers plant to open in China, marking a rapid entry into this market. This plant, in Shenyang, Liaoning, is now manufacturing textile wheel arch liners, undershield and rear seat trims for BMW.

In other recent expansions, the company's former logistics centre in Vance, Alabama, USA, was expanded into a production site in 2012. It now manufactures luggage compartment trims for BMW and Mercedes-Benz, as well as Propylat outer wheel arch liners for General Motors (GM).

In 2014, a second US plant was opened in Norwalk, Ohio, to also make Propylat outer wheel arch liners and luggage compartment trims for GM.

Manufacturing

The current structure of the Borgers group is shown in Table 46.

Products

The Borgers LowMass range features products that are largely recyclable and also consist of up to 90% recycled materials to start with – such as shredded cotton or polyethylene terephthalate (PET) bottle fibres.

The company's materials serve not only to provide improved acoustic insulation, but also weight reduction compared with traditional solutions based on heavy layers. They often have to be heat-formed and pressed into complex shapes to conform to the contours of the vehicle, whether under the bonnet or as part of the interior.

Owing to their material configurations, Borgers products possess a crucial characteristic that conventional synthetic plastic components do not have as trim components – they do not rattle. In addition, the textile surface lends a higher value appeal to the components and at the same time offers a high scratch resistance.

Table 46: Borgers plants, 2015

Plant location	Key activities
Bocholt, Germany	Headquarters and main manufacturing plant
Bocholt, Germany	Olbrich coating machinery headquarters
Beilun, Ningbo, China	Textile trim components
Berlin, Germany	Components for package trays, seatback trim and absorbers
Brasy-Stupno, Czech Republic	Curtains for truck cabins
Breitscheid, Germany	Olbrich machine and tools plant
Bremen, Germany	Assembly and delivery of components and modules for Mercedes-Benz
Dingden, Germany	Insulation for trim components; acoustic packages for home appliances
Ellzee, Germany	Rigid and flexible foam parts
Ghent, Belgium	Packaging and storage for Volvo
Gothenburg, Sweden	Pre-fabricated parts assembly for Volvo
Holoubkov, Czech Republic	Olbrich machines and parts
Hrádek, Czech Republic	Components for Audi, BMW, Mercedes-Benz, Opel, Skoda, Volkswagen and Volvo
Krumbach, Germany	Foam and film extrusion, insulation, linings for truck driver cabins
Langfang, Hebei, China	Triflex trim and carrier components for Mercedes-Benz
Madrid, Spain	Floor carpets, boot mats and package trays for Ford, Volkswagen, Renault, Seat, Audi and General Motors
Maintal, Germany	R&S Teknik plant
Norwalk, Ohio, USA	Luggage compartment trims and Propylat wheel arch liners for General Motors
Rokycany, Czech Republic	Components for Audi, BMW, Mercedes-Benz, Opel, Skoda, Volkswagen and Volvo
Shenyang, Liaoning, China	Textile wheel arch liners, undershields and rear seat trims for BMW
Sindelfingen, Germany	Final assembly of trim components for Daimler
Telford, Shropshire, UK	Components for customers including Ford and Toyota
Vance, Alabama, USA	Luggage compartment trims for BMW and Mercedes-Benz; Propylat outer wheel arch liners for General Motors
Volduchy, Czech Republic	Textile moulded components for Audi, BMW, Mercedes-Benz and Skoda

Source: Borgers

Nonwovens are the basis for all Borgers products; these are manufactured from both natural fibres such as cotton, jute and kenaf, as well as synthetic or glass fibres.

The type of process and the composition of the fibre mix are modified to match specific applications, and in respect of their functionality, the company generally distinguishes between materials for absorbers, trim and carrier components, and those used as décor materials.

Propylat NVH is based on cotton and hardened by thermoplastic fibres without the need

Glossary

AA&E

Aunde Achter & Ebels

A-B-C pillar

The A-pillar is a name applied by car stylists and enthusiasts to the shaft of material that supports the windshield (windscreen) on either of the windshield frame sides. By denoting this structural member as the A-pillar, and each successive vertical support after a successive letter in the alphabet (B-pillar, C-pillar, etc.), this naming scheme allows those interested in car design to have points of reference when discussing design elements. In the most usual configuration, the C-pillar supports the rear window.

ABL

active buckle lifter

ABS

anti-lock braking system

ACC

Advanced Composite Center (Toray Industries)

ACR

active control retractor

ACRS

air cushion restraint system

ACU

airbag control unit

AE

Automotive Experience (Johnson Controls)

AFBG

Aramid Fibers Business Group (Teijin)

AFN

Advanced Fiber Nonwovens (Hollingsworth & Vose)

AFS

Aerospace Filtration Systems

airbag

A flexible membrane or envelope, inflatable to contain air or some other gas. Airbags are most commonly used for cushioning, in particular after very rapid inflation in the case of an automobile collision. Also known as a supplementary/secondary restraint system (SRS), an air cushion restraint system (ACRS) or the supplemental inflatable restraint (SIR).

AMC

Autoliv Mando Corporation (South Korea); Automotive Center (Toray Industries)

ANFA

Asia Nonwoven Fabrics Association

APM

APM Automotive Holdings Berhad

AREP

American Real Estate Partners

ASCI

Automotive Safety Components International

ASHRAE

American Society of Heating, Refrigerating and Air-Conditioning Engineers

ASR

auto shredder residue

ATY

air textured yarn

AWS

Anti-Whiplash Seat (Autoliv)

bast fibre

fibre obtained from the stems of certain plants

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