

CURRENT INFORMATION ON WEBER SCHRAUBAUTOMATEN GMBH

On the safe side... Weber Screwdriving Machines

Safety technology in car manufacturing places extremely high demands on Manufacturers and their suppliers.

It is not just by chance that Weber Schraubautomaten GmbH have been supplying all the leading manufacturers of airbags with machines and systems for connection technology for almost 20 years.

100% process reliability, comprehensive process documentation, and the highest degree of flexibility in both the systems and the service teams, testify to the quality that is "Made in Wolfratshausen".



At this year's 'Motek', Weber are presenting numerous new products. The presentation of the LC series will attract the most attention. The systems in this series are designed first and foremost for standard applications.

Screwdriving technology on the spot

After the 'Motek' is before the 'automatica'

For the Weber developers and engineers, this year's 'Motek' in Stuttgart is already history. With their sights set ahead, they are working at high pressure on the products that are to be presented at the 'automatica' in Munich from the 10th to the 13th of June 2008. But before that, they should take time to see for themselves the qualities of the current new products.

More on the following pages.

In time for the 'Motek', Weber Schraubautomaten GmbH present three new products. In addition to an EC hand screwdriver, the LC series is worthy of special note. Conceptually, the products in this series are adapted to specific individual applications. Some special functions have been dispensed with in favour of an attractive price-performance ratio. But the same still holds true for the LC Line: Weber quality is not negotiable, it is always included as standard.

"Years of experience show that our customers are standardising an increasing portion of their assembly processes. There are only a few different work cycles – but tremendously high volumes; identical product platforms with comparable connection-technological processes – but a further increase in cost and quality con-

sciousness," is how Heinrich Sick, Managing Director of Weber Schraubautomaten GmbH, puts it.

For the area of screwdriving technology, this means that the customer is more than ever asking for high-quality, long-lived, flexible screwdrivers and screwdriving systems.

But individual components no longer

need to be usable for all conceivable special cases, or have an endless list of special functions. The answer is LC. Accustomed top quality, reduced to core functions – at reasonable conditions and with the shortest of delivery times.

In short:

The new EC Hand Screwdriver

The centre of interest among this year's new Weber products is undoubtedly the new, high end EC hand screwdriver for sophisticated, freely programmable screwdriving processes.

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Team meetings in Wolfratshausen ensure bilateral exchange of experience and opinions: (l. to r.) Michael Balling, Markus Fischer, Andreas Hinnenkamp and Carsten Eichel

The eyes and ears of the company

Tuesday morning – just another day. But no two days are alike, because Weber's sales reps don't work to a routine that consists of the same processes from nine to five every day. Each day brings new questions and customer wishes, so suitable solutions have to be found every day to satisfy all those involved: Weber's customer, the Weber customer's ordering party, and the sales rep himself. "We don't work just for fun – but it's a good sign when we enjoy our work, and we regard this as a confirmation that our efforts are worthwhile," says Carsten Eichel, Weber's Regional Representative for Hesse and the Saar.

What's in the pipeline?

And which jobs really have to be done? Basically, all eight Weber customer-service employees see themselves as 'problem-solvers'. It's not a matter of selling the customer as much as possible for the highest possible price. The companies that the employees encounter on site want to implement automated assembly processes. Only the result counts. How to get that result is the problem that has to be solved, and the customer should be confronted with it as little as possible. He wants

to leave it up to specialists who can thoroughly analyse his problem, work out alternative solutions, and finally implement them – preferably from a single source.

This means that the requirement profile that Weber looks for when hiring customer-service employees is pretty sophisticated. Andreas Hinnenkamp, on the road for Weber for more than ten years now, says, "We are all-rounders and specialists rolled into one. We all have technical qualifications. In addition, we are market analysts; but we also need business skills, because we are involved in the preparation of tenders. And, last but not least, we are in direct contact with the customer – which also demands social competence."

Technicians with body and soul

When all is said and done, it is still the customer-service employee who has to solve the technical problems. Unlike freelance commercial travellers, the Weber employees can concentrate fully on the solving them.

Being able to listen and get a feeling for the situation are therefore two of the basic virtues that all the employees possess.

Consulting is followed by assistance

in the management of the contract and in commissioning. Later, the sales employee will also be the first point of contact in questions of maintenance and service – the "One Face to the Customer" principle.

"This works only because we are comparatively free to act independently, and because our colleagues in Wolfratshausen create favourable framework conditions for us." Michael Balling has been working for Weber for six years, so he knows what he's talking about. "We know the wishes and special conditions of each ordering party, and we know which company to approach for the acquisition of new business," the winning of new customers being yet another part of his daily work.

A finger on the pulse

Back in Wolfratshausen. A meeting of all the regional reps. Figures are being analysed, successes and weak points identified. The distinction between 'staff and 'field' is completely removed, because the sector- and customer-specific skills that each colleague contributes are absolutely invaluable.

Here, the customer-service people are acting in their role as market researchers, because, as a rule,

customers give direct feedback on where there is need for optimisation: questions, suggestions and specific requests that are taken up by the various specialist departments in the company.

"Work with customers is only as good as the work in house," says Eichel. "There would be no use in our being convinced of our products, and being able to pass this enthusiasm on to the customers – if a screwdriver were unavailable for a prolonged period, for instance."

Frank and honest

It's an open secret that only those service providers who can demonstrate openly and transparently why this product and no other should be purchased will be successful in the long run. This kind of honesty must be the rule when dealing with all customer contacts.

Balling says, "I must be able to explain to my partner in management how and why I act, just as I take the suggestions of my colleagues on the assembly line seriously."

And what do Weber's customers have to say?

What customers appreciate is our blend of innovative products, the high specialist competence of our employees, and our exemplary service. Weber doesn't give them 'standard-issue solutions', and they know that they can always get in touch with someone who can provide quick, competent assistance, even after 6 o'clock in the evening.

A team of eight sales employees for Germany alone is most unusual in the sector.

But the equation works – for Weber, and above all for the customers. Because, in each individual colleague, the customer has a small but efficient Weber "branch office" in his immediate vicinity that he can call upon at any time.



Markus Fischer, Sales Manager Inland, responsible for marketing at Weber, on networks, annual plans, and sales engineers who are not above getting into overalls occasionally.

Do you know what your colleagues on site are doing right at this moment?

Fischer: My employees work very independently. They know better than anyone else what has to be done and how they have to do it. Of course there are management mechanisms – but I cannot and do not wish to take away my colleagues' responsibility.

But you still plan your work ...

Fischer: Of course! Weber has established a very complex CRM system that permits us to analyse precisely what is going on in the market. From this, we develop annual plans, which designate goals for each customer-service employee. My function is more that of a coordinator – and when the situation requires, I do some fine tuning. The important thing is that we develop these plans together.

Sounds like grass-roots democracy ...

Fischer: The system does not imply arbitrariness – quite the contrary. We define goals for all work areas: standard machines, special machines/systems, and service/spare parts. The results are analysed and consequences discussed once a month. The current new-business and order-entry figures show that this is a suitable, successful method for our team.

Are customer-service people really 'lone wolves', ranging the country in search of new customers?



Motivation through responsibility

Fischer: My colleagues do, as a rule, contact customers and partners alone. But this interface between our company and the customers is too important for us not to support customer service to the best of our ability. In this respect, we see ourselves as part of Product Management, because this assures and institutionalises the flow of information and the decision processes between the customers and ourselves.

So the 'sales rep' was yesterday – and what's today?

Fischer: The people working in my area of responsibility today are

sales engineers who are technically trained, possess analytical capabilities, and are practitioners. Because it often happens that minor service and maintenance jobs are done by our sales employee, who slips into the famous 'overalls' for the occasion.

What does that give the customers?

Fischer: Our dense network of regional reps is unique in the market. This means that the customer always has to do with a highly qualified Weber employee, who can solve all the pending problems quickly and competently – either by

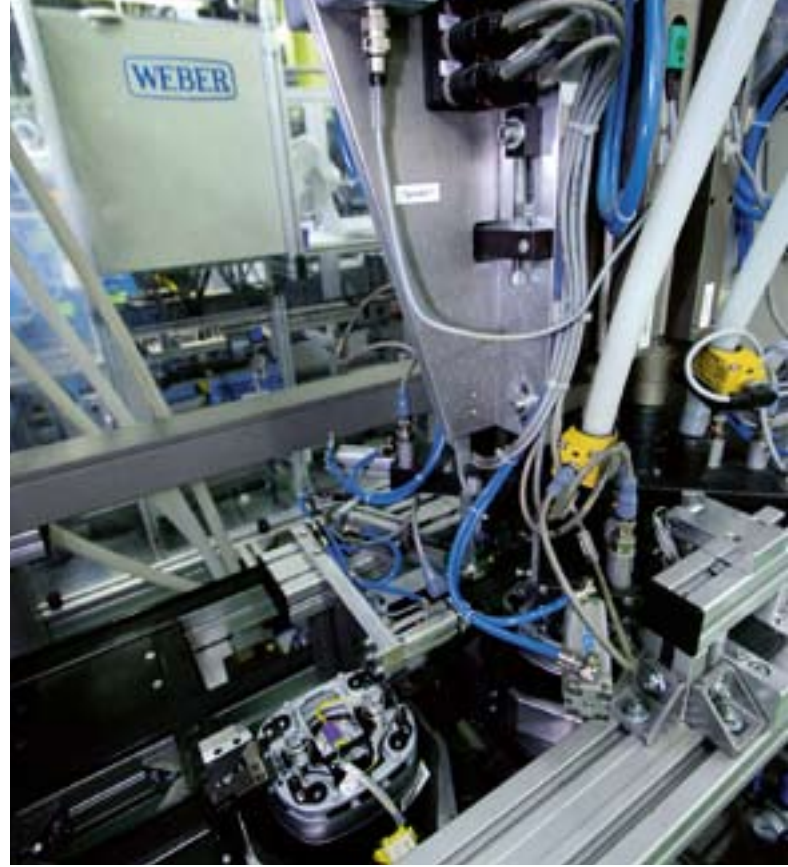
himself, or in conjunction with our headquarters.

What about the future?

Fischer: More and more, I see myself as a provider of services for my employees. Weber must offer suitable products on optimal terms, and the support necessary for successful customer service. That is the daily motivation for my work.

For TRW, one of the leading suppliers of the automotive industry – particularly in the area of safety technology – the reliability, and with it the safety, of their products are at the very top of the agenda. This affects the assembly equipment used. Weber Schraubautomaten GmbH has therefore been the ‘partner of choice’ for the airbag industry for almost 20 years. Because TRW and Weber share a motto:

Safety first



There is hardly a sector of industry that is subject to such dynamism as the automotive sector. On the one hand, the tremendous variety of types, comprehensive model updates even after just a short lifetime, and many personalisation options, live up to the market.

On the other hand, manufacturers and their suppliers are subjected to increasing cost pressure and elaborate simultaneous engineering.

Take the suppliers, for example. Whereas formerly, two to three years were spent in procuring the production plant and preparing it for use, today the entire product development and plant procurement together take only two years. And the tendency is towards even shorter cycles.

Automation and the concatenation of automated assembly processes are one way out of the dilemma of tight budgets and increasing quality requirements.

TRW, one of the leading suppliers of the automotive industry – particularly in the area of safety technology – was quick to recognise that the solution of the problem lies in the automation of complex assembly processes.

Automation and cost-efficiency - yes; neglect of process monitoring at the expense of quality – no!

For one of only three manufacturers of airbag units in Europe, the reliability

and thus the safety of these highly sensitive products is right at the top of the agenda.

Herwig Baust, Manager of Manufacturing technology at the TRW assembly plant in St. Leon-Rot near Waldorf, says, “The high requirements that our customers make on us are the yardstick for our activities. But that also means that we in turn make the same demands on our service providers and suppliers. In the area of screwdriving and connection equipment, for example, we require from our partner, Weber Schraubautomaten GmbH, 100% process documentation and the highest degree of flexibility.”



Herwig Baust (l.) und Josef Probst bei letzten Detailbesprechungen zur Inbetriebnahme der Schraubautomaten für die Airbag-Montage.

Weber has been supplying high-quality screwdriving equipment to TRW for about 20 years. At the end of the 1980s, when Mercedes, BMW and Volvo were installing airbags only as optional extras in their premium models, simple plants were sufficient to assemble the volumes of well under 5000 units a day.

Today, up to ten airbags are installed in every vehicle. The manifold increase in volumes, which now have to be produced in significantly shorter cycle times, can be achieved only on concatenated plants and systems, carrying out the screwdriving, riveting and crimping processes in parallel. TRW has increased its annual

output from 27,000 units in 1992 to currently over 6 million. Turnover rose from just under 1.4 million Euros to 238 million Euros.

Even today, the production of airbags presents TRW and Weber with special challenges. The development times for new models are getting shorter and shorter – each connection in a safety component such as an airbag must be executed in a secure process, comprehensively documented, and archived for 15 years after the end of production of the relevant model.

Josef Probst, Project Manager for special Machines at Weber Schraubautomaten GmbH, says, “With our connection-technology systems, we can guarantee that parameters such as torque, angle of rotation, etc. can be implemented in a secure process, and documented end-to-end. So it is possible to reconstruct which screw was processed at what time and with what results. At the same time, our systems have test equipment integrated to check and document the cabling between the priming cap, the airbag module and/or the operation of the integrated horn and function buttons to the vehicle-side plug connection.”

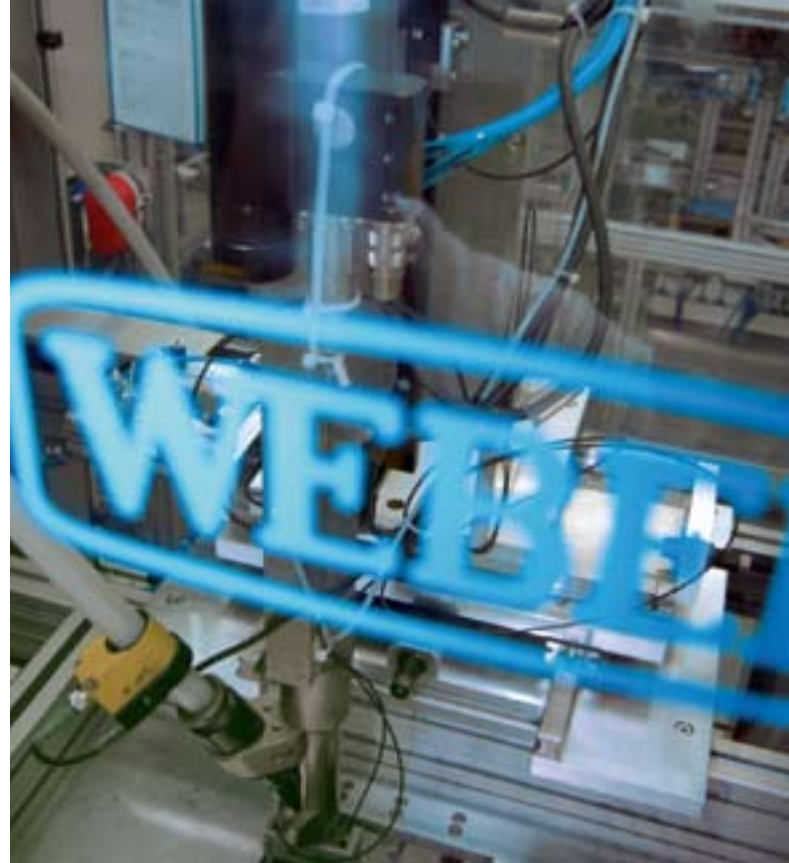
And that’s not all! TRW work strictly to customer specifications. For design reasons, TRW must react to the trend towards smaller and smaller



Safety-relevant components like airbag units demand a maximum of process security from manufacturer and supplier.

ler airbag units. The space available for the assembly of the airbag unit in the steering wheel is further restricted by the configuration of function buttons or switch paddles. For Weber, this means that the screwing in of the gas generators, contact units and multifunction buttons during assembly of the module as a whole may result in situations requiring three-dimensional driving axes that are implemented on six-axis robots. For these situations, Weber automatic screwdriving machines are also the first choice at TRW. Herwig Baust says, "With 21 shifts a week, we cannot afford down times.

One implication of this is that, in the area of screwdriving equipment, we must not only employ flexible systems, but must also be able to rely on service round the clock. If a fault occurs in an automatic screwdriving machine on Friday afternoon, I can't wait until Monday lunchtime for a service technician to arrive. This is where Weber picks up the most bonus points with our company – because products and service are simply right. The fact that we have been working together for almost 20 years is the best and most impressive proof of the productivity of this cooperation."



In addition, process technology must also assure product processing times of about two minutes and cycle times of 15 seconds per airbag module. The systems that Weber develops for TRW and other automotive suppliers run through a fixed procedure in the course of their creation. As soon as the manufacturer has the first concepts and design proposals ready, TRW gets its suppliers, like Weber, on board. Feasibility studies are carried out, and an estimate is worked out. As a rule, the engineers know the specifications of the components about 20 months before start of pro-

duction of a new car model. At this point, however, the manufacturers already want to start with the planning and procurement of assembly lines – but at the same time, they want to integrate changes, because the car manufacturer's specifications mean that pre-series components have to be manufactured on the series system. So the development times for the suppliers' machines are shortened dramatically. For Weber, this means that there must be only a few months between request for tender, order placement and delivery – a task that only big, efficient manufacturers will be able to cope with in future. Weber, at least, has equipped itself for this scenario, and has increased the staffing of critical positions in Design and Project Management. Safety first! For TRW und Weber, this is the motto that pervades all their efforts, because process-secure assembly of safety-relevant components is a highly sensitive matter, requiring skill and years of experience. TRW and Weber have enough of both to optimally meet their customers' needs in future.



Assembly and test technology in one. In airbag assembly, the highest safety demands are made on material and processing.



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... Screwdriving technology on the spot

With this, Weber adds a powerful hand screwdriver with electric drive and automatic screw feed to its product range.

The 'HSE' is intended to be used first and foremost in safety-relevant assembly processes or for delicate components. If desired, Weber equips the 'HSE' hand screwdriver with drives and controls of different power ratings. This way, different screwdriving processes can be optimally parameterised and monitored. A special feature of this hand screwdriver is the capability to adapt it to almost any drive and controller, as the customer wishes.

The most decisive factors in the use of hand screwdrivers are the handling characteristics and the flexibility of the unit. In these points, the 'HSE' sets standards. It is characterised by its compact construction and light weight. The maximum torque is 6 Nm. The new hand screwdriver is fitted with a bit advance. This reduces the force applied when driving screws to a minimum. The bit stroke is adjusted so that the screw protrudes from the aligning guide. This makes it considerably easier to apply the screwdriver and to find the hole.

The bit can be changed and faults in the swivel arm or screwdriving head rectified without tools. Quick-release fastenings on the appropriate parts

considerably reduce the work and time required. The new hand screwdriver is designed for left or right rotation.

The screwdriving process is triggered electrically – the result of the assembly process is shown on a display, or can be output via the controller interface.

Feed screwdrivers – a new approach

Weber has for many years been known for its competence in the development and implementation of complex systems with highly flexible controllers and high-performance feed systems.

The LC feed (LCZ) now presented adds precisely fitting technology for standardised hand-screwdriver applications to the existing product range.

The feed works with a 'CS10S', a controller that was designed for less complex processes. The concept of the overall screwdriving system was reduced to the minimum that is actually needed: maximum quality and customer orientation with optimisation of the available features.

The new feed and control unit can process a large number of normal connection elements, which must, however, conform to a certain grid.

The new 'C10S' controller (bowl feeder and LC controller in one unit) controls the entire feed and screwdriving unit.

This dispenses with the need to install a second controller.

Because of this focus on important core elements, it was possible to lower development and design costs significantly. Weber passes on this product benefit, so the customers receive a fully functional hand screwdriving system at an attractive price-performance ratio.

In addition, Weber guarantees all buyers that the new feed and control unit will be delivered within one week of receipt of the order.

Heinrich Sick says, "With the LC Line, we are not offering cheap products of inferior quality. Quite the contrary! For less complex applications, this line takes up a leading position with regard to longevity and cost-efficiency. So it's Weber competence on interesting terms."

New screwdriving spindle with compressed-air drive

Some sectors of industry are characterised by having to produce high volumes with little variance of the product.

Example: The assembly of windows

or furniture. The screw connections in industrial assembly of wooden parts are as a rule easily accessible, and rarely involve safety-relevant aspects. On the other hand, the screwdrivers must be robust and, because of the pressure of prices, must be cheap to buy.

The new screwdriving system in the LC series, which Weber is presenting at this year's 'Motek', fulfils just these requirements. The new screwdriving spindle offers all the necessary adjustment and configuration options, and with the proven automatic screw feed unit, the new product meets the highest requirements on quality.

The spindle is driven by a compressed-air motor, and the screwdriving process is shut off when the required screwdriving depth or torque is reached. No further parameterisation is required, because it has been shown that end-to-end process monitoring is not necessary in the intended areas of application.

So there is a lot happening in the south. For detailed information on the new Weber products, visit www.weber-online.com or ask the Sales Manager responsible for your area.



A team with a vision. In the USA, Weber is one of the Top Five in the sector, with a highly motivated team that cares for customers in all sectors of the processing industry.

Good Morning America!

What began in 1975 as Weber Screwdriving Systems Inc., an independent agency of the German Weber Schraubautomaten in the US, is today among the Top Five suppliers in the screwdriving automation sector in North America. At Weber USA, 29 employees attend to the growing American market, which plays by its own rules.

When Jim Graham, President of Weber USA, takes stock of recent years, what is uppermost in his memory is the dramatic change that the automotive industry has gone through in that country. The domestic manufacturers are among the most important Weber customers.

"The competition from Asia hit the domestic car market heavily. For Weber, that meant that business with our producers was no longer optimal. We didn't want to just stand and watch this process, so now we supply the automotive industry in the Far East that produces for the American market."

Here, Weber USA was able to play one particular trump card. Since the company was founded, the name of Weber has stood for innovation and highest quality – characteristics that customers worldwide appreciate. And quite apart from that, the list of references for Weber USA reads like the 'Who's Who' of North American and international major industry: GM, Chrysler, IBM, Sony, Boeing and

Caterpillar are among the referees. It all began in Yorktown Heights, north of New York, the headquarters of Weber USA, with the same products that had made Weber one of the dominant companies in the German market, too: the 'HSP' hand screwdriver was far ahead of its time when it was introduced. The 'HSP32' model continues this successful tradition today. Or the modular SA 03/10/30 series of screwdriving spindles; products that cement Weber's excellent reputation in the USA.

Weber USA sees itself first and foremost as a regional sales organisation for North America. But it was never Jim Graham's philosophy – or that of his team – to merely sell products that had been developed by other Weber subsidiaries: "We are sales engineers who are completely familiar with our products and the needs of the customers, and who can design the appropriate solution."

Weber USA has always kept an eye on the changes taking place in the

marketplace. The requirements of the customers do differ.

This means that Weber has to design special solutions and implement them in the shortest time possible. Long-term strategic planning is helpful here, deriving trends in assembly technology from observation of the market, and developing a forecast for the years ahead.

'Fine tuning' is what Jim Graham calls it, meaning even more rigorous customer orientation. For him, this means not only intensive market analysis but also direct discussion with customers as often as possible, on the occasion of visits to assembly plants or at fairs. The label "New Weber" stands for new, innovative products that the market is asking for. What began so successfully with the 'HSP' hand screwdriver, and was consolidated with stationary screwdriving equipment and automatic feed systems, today means the ability to offer the customer an integrated, global solution for each application, including the controllers as well as high-performance feed equipment and process-secure, documentation-capable screwdriving equipment.

The development of the new 'C50S' controller was an important step in this direction.

Weber is a strong brand in North America.

The products, solutions and service that Weber offers are exemplary.

Asked about the definite plans for Weber USA, Jim Graham has pretty precise ideas about how the market position of Weber USA should be consolidated and enhanced. Basically, product development is the key to success. But he also sees the role of political decisions based on location in the age of globalisation. In one current case, for example, Weber USA delivers screwdriving spindles, feed and control systems to Japan. The manufacturer installs these components in his production line, which is then sent back complete to the USA.

Weber USA is about to embark on a new stage of the company's history.

Together with the headquarters in Wolfratshausen, it intends to cover the entire range of products in the area of screwdriving automation, from special, high-end solutions through certain niche products to the mass market for universal hand screwdrivers. Weber USA will further develop new sales strategies that will certainly differ from others, because of the North American mentality. Graham says, "I am certain that we are going in the right direction."

Not just hot air ...

Did you know?

How old is the life-saving airbag: 10, 20 or even 30 years?

The first patent for devices similar to an airbag – for use in aircraft – was granted as long ago as 1920. However, the developers had to accept bitter setbacks. In 1974, General Motors had introduced the Air Cushion Restraint System (ACRS). After fatal accidents had occurred because of the technical inadequacies of this compressed-air-operated system, ACRS was taken off the market.

Mercedes-Benz started work on practicable airbags in 1967. The first experiments relied on compressed air and Freon 12 to fill the airbag. Technically the best solution, however, proved to be a textile bag that is inflated within milliseconds by a pyrotechnical charge in the case of an accident. Before it was ready for series production, the retention system had to go through more than 250 crash tests and thousands of tests with individual parts. At the same time, a long-term experiment ensured that the gas-bag did not trigger in normal traffic situations.

The first German car with an airbag was the Mercedes-Benz W126 (S Class) in 1980.

Initially, most vehicles were fitted only with a driver's airbag. Front passenger airbags have been added since the late 1980s, with side airbags in the mid 1990s, and head airbags at the end of 1997. Up to eleven independent airbag systems are meanwhile standard in series production.

In addition, today's cars are fitted with belt tensioners and belt force limiters, which all combine to achieve optimal passenger retention.



Wolfgang Wieland, Hans-Jürgen Fritz and Uli Safft (l. to r.) are only three of the strong Weber team, which accepts both sporting and business challenges with equal confidence.

Weber in good shape

The Weber company is in good shape and ahead of the competition – not only with regard to its products. The company's employees also emerge fit and victorious. It's a performance-oriented company, after all!

Members of the Weber team in Wolfratshausen regularly face sporting challenges, competing to win or do well. They did so most recently in running events, some of which command international attention. Wolfgang Wieland, Uli Safft and Hans-Jürgen Fritz are three of those who accepted the challenge – the "Quelle-Challenge" in Roth – of one of the best-known triathlon events worldwide.

The fact that each of them only took part in one of the disciplines (Fritz: swimming; Safft: cycling; Wieland: running) in no way detracts from their achievement. On the contrary; all those who take part show ambition, stamina and the will to win. Qualities that the colleagues certainly bring with them to their work for the Weber company.

By the way, the three of them did remarkably well in the field of about 100,000 starters.

And that is not all! The annual city runs in the towns of Wolfratshausen and Geretsried often have "Weberians" in the list of starters for the 1, 2 ½, 5 or



10 km distances.

The most recent example was the Oberland Company Race.

As the "local heroes", the Weber crew could not very well absent themselves.

The Company Race combines enjoyment of sport with team spirit and corporate activity. It appeals to both the keen athletes (at any rate) and their colleagues who are there out of solidarity, because the disciplines and scoring are designed to offer both challenges and fun.

The individual's performance is not in the foreground – but rather the feeling of reaching the finish together. The Company Race thus promotes motivation and identification with the company.

Make a wish

(New) customers who would like to receive information about Weber's products and solutions do not have to wait for the next trade fair. Weber's customer-service employees will prepare an individual company and product overview – attuned to the specific requirements of the customer – and present it on site.

This summer, the MANN & HUMMEL company invited all its decision-makers in the area of connection technology to an information event on the basics of screwdriving technology, automatic screw assembly, product design, the 'C50S' controller and general statistics in screwdriving technology, held by Weber employees. The benefits: optimal advice and great savings in time.

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