

sapa:

Extruding value for the automotive industry







Welcome to Sapa Automotive

Our mission

We shall help customers in the automotive industry grow by increasing the number of extruded aluminium solutions in their vehicles.

Innovative vehicle components based on extruded aluminium profiles

Sapa Automotive's customers are car and truck manufacturers and their subcontractors worldwide. They need to develop attractive designs and cost-effective manufacturing methods, reduce their environmental impact, and minimise the energy consumption of their products. We meet these needs with innovative vehicle components based on extruded aluminium profiles. Sapa's global production resources allow us to supply fully assembled components or sub-systems.

Value-adding partnership

Sapa Automotive aims for a long-term partnership. An in-depth knowledge of our customers' business, products and strategies enables us to maximise the value we add. Our key account managers are supported by a complete team of development and production engineers as well as quality and logistics specialists. Where it is necessary to explore uncharted aluminium territory, the R&D resources of the Sapa Group are at our customers' full disposal.

From standard profile to charge-air pipe



It began in 1963

After graduating in the 1950s, two young Swedish engineers travelled to the United States and learned about aluminium extrusions. Later, they returned to find that there were no independent extruding companies in Sweden. They decided that the ideal location in which to set up business would be equally far from Stockholm, Malmö and Gothenburg, which is how the company came to be established in the southern Swedish town of Vetlanda in 1963.

The first extruded profile was a simple L profile. The rest is history. Today's Sapa is one of the world's



leading aluminium extruders, pioneering manufacturing methods such as friction stir welding and hydroforming, allowing almost total freedom in aluminium extrusion design.





Adding value by design

Sapa has been an innovative company from the start, and innovation is what we strive to add to all customer proposals. We develop a customer's design into a manufacturable product through the best possible combination of machining, surface treatment and assembly method. We coordinate all of these aspects, in addition to logistics, and assure adherence to quality standards and procedures while doing so.

Key words are minimalism and multi-functionality. We ensure that our profiles have the right thickness



and radiuses for the task, no more, no less. We also study the proposed component in its environment. A superior solution can often be found, integrating several functions into a single, cost-effective component.

Passenger cars and commercial vehicles are our core business

Sapa Automotive was founded in 1994. We saw that a focused build-up of knowledge was necessary if we wanted to do business with the automotive industry. Although our corporate role is to function as Sapa's automotive sales organisation, we do so by acting as consulting engineers, marrying automotive and aluminium extrusion technologies. Sapa Automotive provides a crucial link between our customers' internal engineering departments and the Sapa plants that manufacture extrusion-based aluminium products.

Breakthrough development



Extrusion development

We invest extensive effort into developing the extrusion die. Having made more than 150,000, we can safely say that our die makers are some of the best and most experienced in the world.

Your manufacturing partner

Sapa Automotive is never content to leave you with a raw extruded profile. Our aim is to function as a total manufacturing partner. Regardless of whether an order calls for a limited number of parts with a high degree of manual work, or a fully automated assembly line, we will add value to the aluminium profile through bending, machining, surface treatment and assembly.

Adding value through surface treatment

Surface treatment is part functionality, part design. Aluminium is attractive in its own right, anodised, ground, electro-painted or polished. Functionality can be added through treatments such as enhanced corrosion protection or an anti-slip coating. Reflective properties can be incorporated by mirror polishing and electroplating the surface.



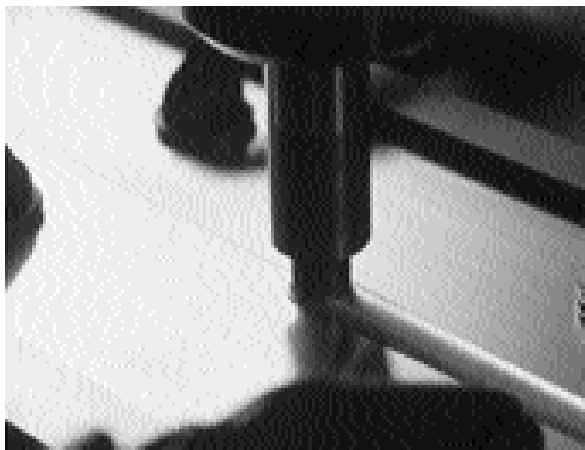
Multiple bending methods

Bending is the cornerstone of value-adding machining. Draw bending is the most common, suitable for tight radiuses. Roller bending is preferred for forming large radiuses. Stretch bending provides the greatest accuracy in three-dimensional form, while press bending is a cost-effective method where accuracy requirements are less stringent.



Innovative friction stir welding

Extrusions can be joined using friction stir welding. This welding method uses a rotary dowel to join pieces with minimal influence on the material's properties compared to traditional welding. Extruded aluminium sidepanels for train cars are manufactured this way. The potential of this joining method in the automotive industry has yet to be fully explored.



Unlimited shaping with hydroforming

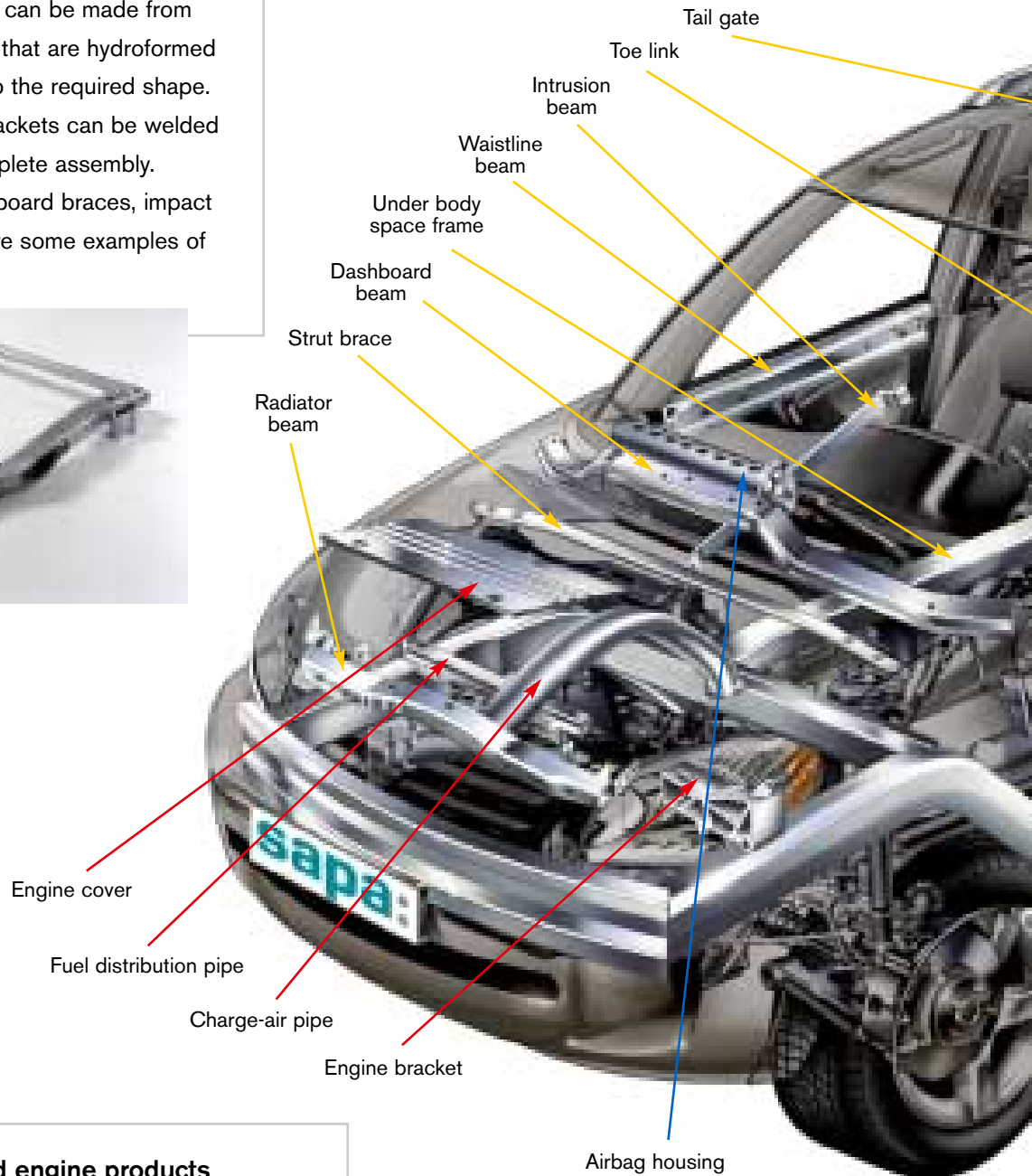
Complex shapes are possible through hydroforming, which allows the precise tailoring of the cross section and three-dimensional bending of profiles. Closed section extrusions are formed with dies and internal water pressure. The method has great possibilities for structural members and pipe components with varying cross sections.



Adding value through specialised knowledge

◆ Structural parts

Frames and subframes can be made from closed-section profiles that are hydroformed three-dimensionally into the required shape. Crossmembers and brackets can be welded to these to form a complete assembly. Radiator mounts, dashboard braces, impact beams and bumpers are some examples of such structural parts.

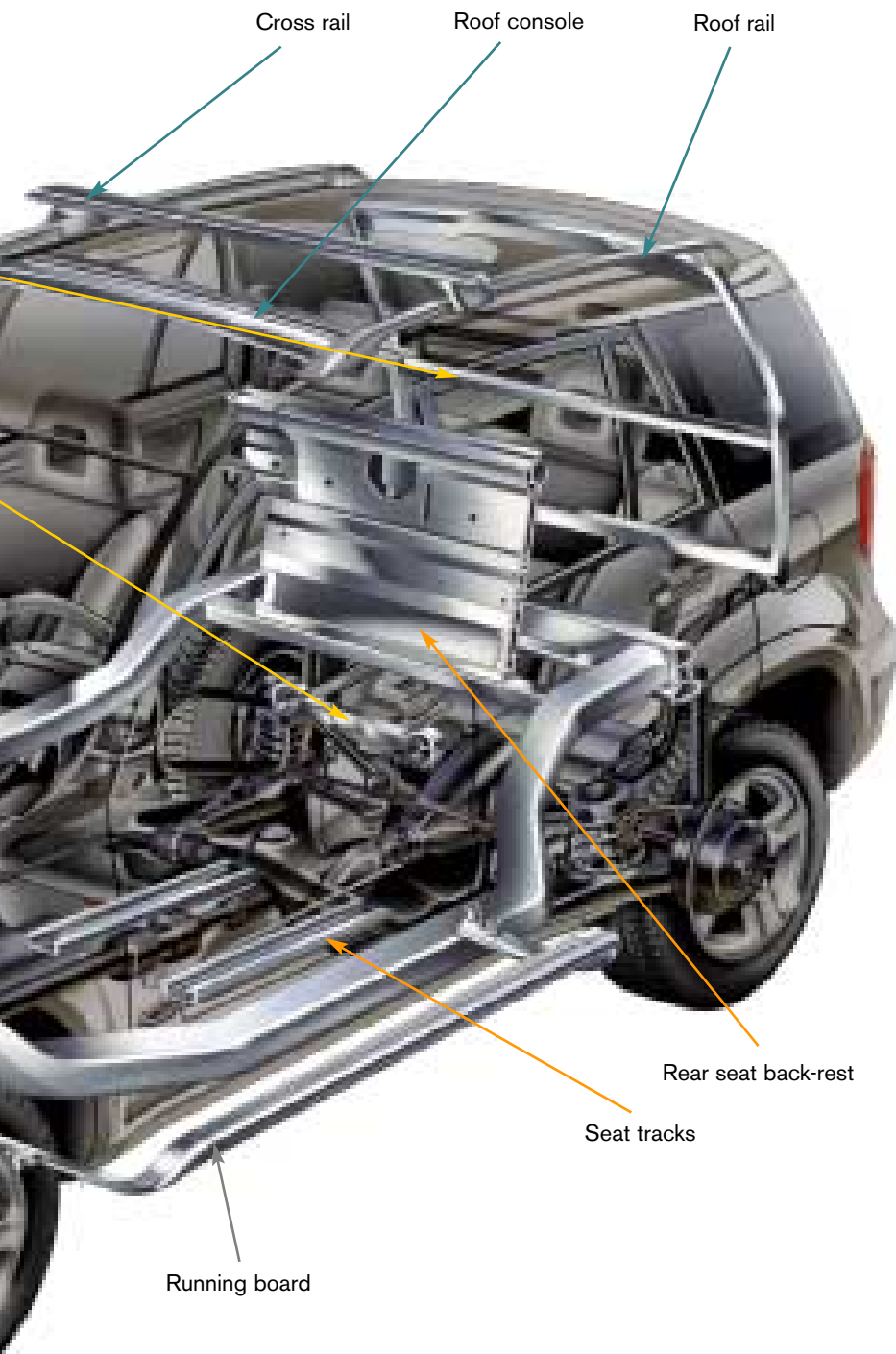


◆ Fuel systems and engine products

Many engine parts can be successfully manufactured from aluminium extrusions – fuel rails and fuel distribution components, engine mounts and brackets, even valve covers and hydroformed charge-air pipes. An innovative example of multi-functionality is a combined fuel distributor and electronics cooler.

◆ Safety parts

Airbags and impact protection equipment are important for passenger safety. Many components, such as airbag housings and side impact beams, are based on extrusions.



◆ Roof rails

For some automotive manufacturers, Sapa Automotive takes on a complete roof rail assignment. Roof rails are developed, manufactured, surface treated, assembled, packaged and distributed by us. They arrive at assembly lines as complete sub-assemblies. Roof rails are a perfect example of a sub-system that adds value to a car by adding versatility.



◆ Seat tracks and seating components

Extrusion-based seating parts offer unique possibilities. We have developed an innovative serration tool, exclusive to aluminium, that allows very cost-effective manufacturing of high-precision seat slides. Structural seat parts such as back rests can also be successfully made from extrusions, friction stir welded to achieve the required size and shape.

◆ High-finished trim

Trim around door openings, behind door handles, on dash boards and in various places throughout the interior – these offer perfect examples of high-finished trim parts that can be manufactured successfully from durable aluminium extrusions.



A committed business partner

Single sourcing

Sapa Automotive has the ambition and ability to be a single source contract manufacturer of automotive components and sub-systems. In addition to manufacturing extrusions, we purchase external parts, and assemble and deliver the finished product. We can package, palletise, and distribute complete sub-systems as required by your business.

Total cost optimisation

Spending more thought in the concept phase inevitably leads to lower overall spending. For example, taking logistics into account at an early stage minimises the total manufacturing cost by allowing careful choice of the locations for extrusion, additional manufacturing, assembly, storage, and delivery. Other important optimisation areas are design, final assembly and long-term maintenance.

Environmental commitment promotes quality

Our ISO 14001 commitment requires us to maintain precisely controlled operations, cleanliness and order. In effect, this ensures consistent high quality in the delivered products. Naturally, we are also quality certified at the highest level.

Adding our knowledge to yours

Sapa's design handbook is considered to be the aluminium extrusion designer's bible. If so desired, we will help your engineers and purchasers acquire the knowledge needed to make the best possible and most cost-effective extrusion designs through exclusive, company-specific workshops.



Local presence, global competence

Long history, long future

Sapa is a solid international group entirely specialised in extruded aluminium for many different applications. Forty years of business support our ambition to act as principal long-term partners to our customers.

A Sapa extruding plant near you

We have the capacity to handle any order. Sapa has nearly forty aluminium-extrusion presses at plants throughout the world. Sapa Automotive offers optimum solutions for your business,

including design, extrusion, additional fabrication, assembly and logistics.

Highly qualified Sapa representatives at your service

In every major automotive manufacturing country, dedicated Sapa personnel are on hand to ensure you all the support that we can muster – quite simply, Sapa's total expertise and experience in extrusion technology for the automotive industry. That is what Sapa Automotive can do for your automotive business.





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Shaping the future