



A change in thinking is called for when choosing products: “Steel profiles enable more environmentally friendly and sustainable construction with lower CO₂ emissions,” says André Langer, Chief Technical Officer at Husemann & Hücking. (Source: Husemann & Hücking)

Roll former says: “Steel profiles make the construction industry more sustainable”

Steel profiles and tubes are mainly manufactured by roll forming. The low energy requirement of the process, the one hundred percent recyclability of the material and the overall lower CO₂ emissions make the products particularly sustainable and environmentally friendly. André Langer, plant manager at Husemann & Hücking Profile GmbH, explains the details.

Their carbon footprint is one of the key climate protection aspects by which companies are measured today. What does that mean for you as a manufacturer of special profiles and tubes?

Of course, the avoidance and reduction of CO₂ emissions always starts with raw materials and their further processing. Our carbon footprint therefore plays a major role for us as a manufacturer of semi-finished products. Certification is currently not directly required from us – this first and foremost applies to manufacturers of end products. But as we have

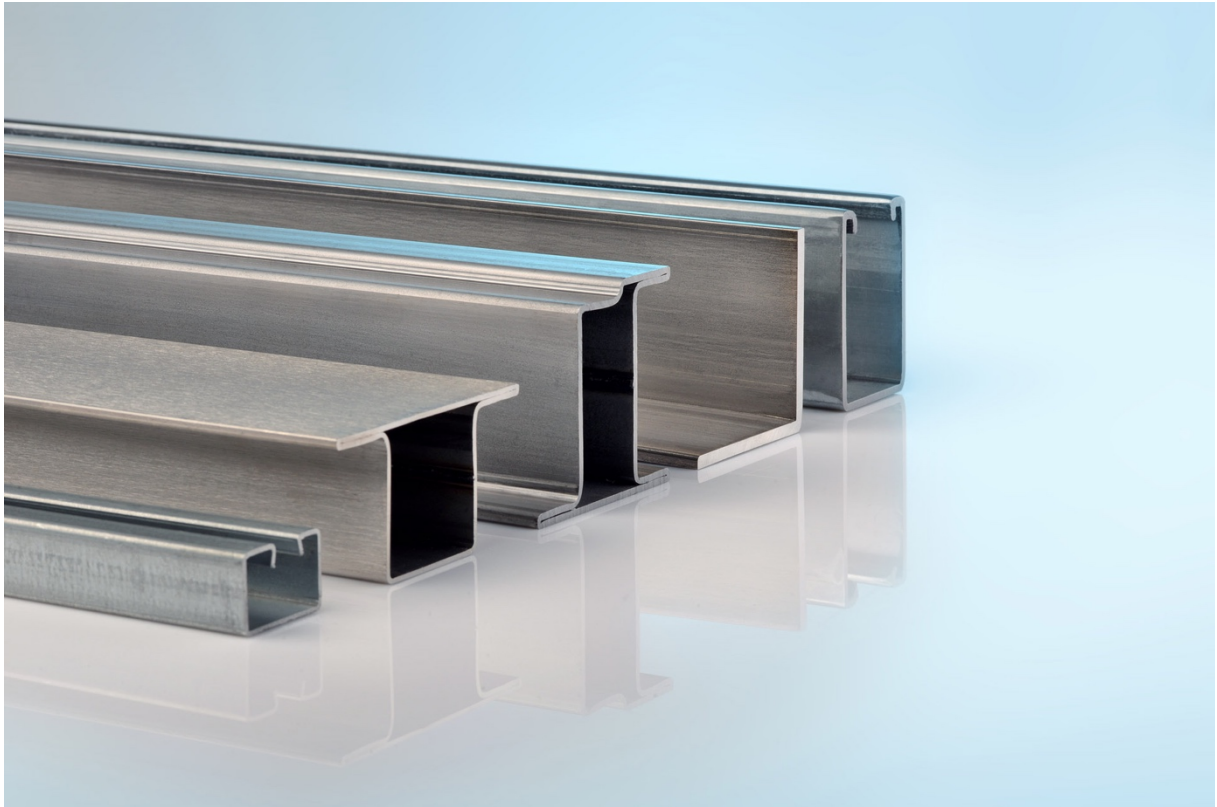
excellent environmental performance with our steel profiles anyway, our products are particularly sustainable.

What does this actually mean?

Steel is an extremely environmentally friendly material: it can be fully recycled and returned to the material cycle time and again. And ultimately, the weathering process causes it to decompose into its chemical components. Thanks to its high strength, steel is also suitable for filigree structures such as curtain wall structures. Aggregates are used to optimise the properties of steels, for example with regard to high strength, low dead weight, good elasticity or high stiffness. Such special variants include stainless steel or corten steel. And theoretically, the roll forming production process already enables special profiles and tubes to be produced carbon neutrally from strips and sheets today.

What do you mean by “theoretically carbon neutral”?

We manufacture our products from hot-rolled strip and hot-dip galvanised slit strip with precisely adjusted material qualities. We mainly procure these preliminary products from European steel works, which are already actively committed to reducing their CO₂ emissions. Most of them use the electric steel process, where a high proportion of steel scrap is processed. Research is also being conducted into production processes for carbon-neutral “green steel” using renewable energies and hydrogen synthesis to produce steel. Roll forming is a cold rolling process. This means that the energy consumed in the forming process is extremely low. The starting material is not heated and kinetic energy is only required by the tools, certain machine parts and the steel strips to be formed, including a certain amount of frictional energy. All in all this results in very low CO₂ emissions.



Cold-rolled steel sections for greater sustainability and CO₂ neutrality

Could you be a bit more precise?

The pure manufacture of a ton of aluminium produces around eight to ten tons of CO₂. In comparison, steel produces less than two tons of CO₂. Furthermore, the mining of bauxite and the subsequent extraction of aluminium cause major environmental damage and the recyclability is significantly lower. In contrast, steel can be infinitely fully recycled and turned into various material grades time and again. The huge range of grades makes steel very competitive compared with other materials – also in terms of lightweight construction.

Do you think that steel profiles will increasingly replace aluminium profiles in the near future?

No, I don't think so, even though I often believe that steel profiles would be a good substitute for aluminium. Every material has its justification, depending on the intended use. But I think that in future people will look more closely at the most suitable material for the application concerned. The sustainability of the products must be considered, especially in terms of climate protection and environmental friendliness. For several decades, aluminium profiles have had an important place in the construction industry and other industries, and this is especially due to their low material weight, good workability and corrosion resistance. But steel certainly deserves a renaissance.



WP WASTO Flood protection in Hamburg's "Hafencity" district

Perhaps you can give us a few examples of where steel is the better choice?

A good example is our WP WASTO flood protection for buildings. The profile system has a unique filigree structure and is so light that it can be handled by just one person. Nonetheless, the system slats can withstand water pressure of 500 to 600 kg/m². Steel doors are a further example. Regardless of whether they are used for fire protection, building protection or as doors in frequent use – there's nothing stronger than steel. Roll-formed steel profiles are indispensable in many areas, for example for bridge railings, truck and bus construction, suspended ceiling systems, in air conditioning and ventilation technology or for industrial assembly lines.



The stable and transparent WP 50 cold steel door and partition system
(Pictures: Peter Kanthak)

What do you think could be done to make steel products more widely used?

In 2020 the European Commission launched a legislative initiative to achieve the climate targets set. It focuses on decarbonising products and continuous material cycles. Roll-formed steel profiles make an important contribution to meeting these targets. The almost unlimited possibilities for profile forms including further pre- and post-processing steps such as perforations, embossing and mitre cuts can be realised today in a fully integrated production that conserves resources. Roll formers can do all this – also tailored to customer requirements. I am an advocate of steel because it would make the construction sector, for example, more sustainable and more environmentally friendly.

What else would help?

Politics should not only be concerned with specifications, but also rethink its own procurement guidelines, for example for municipal projects. As regards material selection, we need flagship projects with a certain exemplary function that start to alter the way we approach things in practice. Needless to say, right from the start we as a manufacturer must also increasingly educate architects, designers, planners and decision makers in all kinds of different industries about the many different possibilities and the positive environmental footprint of roll-formed steel profiles. This can also open up new perspectives and solutions for metalworkers.

What specific conclusions do you draw from this for your company?

We already offer an attractive portfolio of roll-formed standard profiles which are kept in stock and we continuously develop individual solutions for and together with our customers. In addition, we want to become increasingly sustainable, which is why we are committed to reducing surface protection applications as they also place a burden on the environment. This is why in 2019 we expanded our proven product line of WP Profiles to include the materials stainless steel and corten steel. With the Sequoiasteel brand, we are the only producer in Europe to have a stock of stop tubes and a range of square and rectangular tubes made of weatherproof corten. This is interesting for processors, for example, because surfaces no longer have to be treated, and this is why we are planning to quickly expand the range of these particularly environmentally friendly products.