SIDERVAL
SPECIAL PROFILES IN STEEL

Mech. Engineering

# Hot extruded Special Geometry for Enhanced Structural Safety

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| **Profile:** Special Geometry |
| **Material grade:** Carbon steel |
| **Execution:** Hot Extruded |
| **Destination:** Europe |

## BACKGROUND

Siderval has entered into a strategic partnership with HERMANN SPENGLER GmbH & CO.KG to address a **key safety challenge** in the construction of highways and Formula 2 racetracks: the development of a joint barrier that can adapt to the natural expansion and contraction of concrete and withstand vehicle impacts.

Our goal is to **prevent** catastrophic crashes by ensuring that vehicles remain within designated lanes on highways and within racetracks, improving driver and spectator safety.

This commitment underscores our resolve to confront and resolve complex structural safety challenges in highly demanding and ever-changing conditions.

## CHALLENGE

Faced with the complexity of modern infrastructure needs, we decided to take on a series of engineering challenges aimed at revolutionizing the old profiles used for this application, which were:

- Develop a joint that combines **elasticity** for the expansion of reinforced concrete and sufficient strength to stop vehicles upon impact.
- Ensure a **profile shape** that perfectly interlocks while maintaining necessary functionalities: expansion, flexibility, and impact resistance.
- Pass "**crash tests**" with heavy vehicles without compromising safety.
- Address the **complexity** of the profile's geometry, requiring specific attention during the straightening phase.

## SOLUTION

To meet the complex demands of modern engineering, Siderval entered into a strong collaboration with HERMANN SPENGLER GmbH & CO.KG.

This collaboration aimed to perfect a design that would push the boundaries of current safety standards.

The culmination of these efforts was a normalized and sandblasted **carbon steel** profile that not only met but exceeded stringent safety tests. This profile, with a special geometry and measuring 148.9x83.2 mm with **very tight tolerances** of ±0.8 mm.

Due to meticulous attention to **surface quality** and geometric tolerances, we delivered the bars in lengths of 4 meters, which the customer then cut to size.