The high-volume production environment in the automotive industry is one specific example where resistance spot welding and laser welding are well-established technologies. Both technologies have pros and cons. For laser welding, especially in the case of laser remote welding, the main advantage is the significant cycle-time reduction due to almost complete elimination of idle times and the advantages of laser-welded seams. For resistance spot welding, one of the pros compared to laser welding is the integrated clamping technology, which comes nearly for free.
Both advantages can be combined in a fast laser-welding production tool that provides robust, process-secure, integrated clamping of components: the Laser-Seam-Steppers in various designs (LSS1, LSS2, LSS3 and LSS5) from IPG Laser GmbH.

The new tool is a Class 1 laser device under specific restrictions, meaning it can be used on production lines without the need for additional laser-safety mechanisms. This is a distinct advantage over traditional laser welding, which typically takes place behind safety enclosures, adding cost and consuming valuable space.
Modern laser welding has been used in auto body plants and in the production of sheet metal components with the following advantages:

- Higher process speed (shorter cycle times).
- Increased component strength via longer seams and resulting higher torsional stiffness.
- Effort and cost comparable to today’s resistance-welding systems.
- Realization of higher job safety requirements with reduced costs.

Other new laser designs with new beam shaping like the “Triplefocus” or “Multifocus” for brazing and welding have shown big benefits in higher processing speed (+30%), higher strength (+30%) and much better behavior against corrosion at same power level than standard lasers.