



Reference Details

Owner Federal Republic of Germany/Federal State of Mecklenburg- Western Pomerania
+++ Main Contractor DEGES GmbH (German Division of Highway Design and Construction), Germany +++
Engineers Schmitt Stumpf Fruehauf und Partner, Germany +++
Consulting Engineers Buechting + Streit, consulting engineers VBI, Germany

DSI Unit SUSPA-DSI GmbH, Koenigsbrunn, Germany
SUSPA-DSI Scope Development and supply of *GEWI*[®] mounting parts for *GEWI*[®] Guard Rail Reinforcement System



Development of a New Guard Rail System Using *GEWI*[®] Bars

R&D Activities in Germany

The current European standard, EN 1317, requires an upgrading of existing restraint systems for roads because "leaving the road" is still one of the most frequent causes of accidents. In Germany, the issue of developing reinforcement for restraint systems in accordance with EU regulations was addressed by Toge in Nuremberg. SUSPA-DSI made a significant contribution to what is now a successful method for upgrading restraint systems. The result was a system that can not only be used for the construction of new restraint systems, but can also be used as a cost-efficient and quick upgrade for existing guard rails.

Guard rails usually consist of metal. During the last few years, hot-dip galvanized steel has increasingly established itself due to its high form stability. At the same time, steel's deformability is one of its major advantages in comparison to restraint systems consisting of rigid walls. This elasticity allows the safety system to absorb part of the vehicle's impact energy without breaking.

In the case of the German RAL system EDS 2.0 in its driven version, the containment level could be brought up to H2 by the installation of reinforcement into the existing systems. This reinforcement is cost-effective and can be installed at a daily conversion rate of approximately 1,500m. EDS 2.0, which is patent pending, is especially suitable for use in areas that do not have to conform to efficiency level W4.

Another patent-pending system, ES 2.0, is used in areas where containment level N2 is sufficient, but where a smaller sphere of action is desirable. Since upgrading can also be carried out efficiently and quickly in this case, the system is an efficient alternative to higher strength systems. The suitability of both systems was confirmed by comprehensive tests.

In co-operation with SUSPA-DSI GmbH, Toge developed the new *GEWI*[®] Guard Rail Reinforcement System consisting of high quality *GEWI*[®] Bars that exactly meet requirements with regards to elasticity and strength. Furthermore, *GEWI*[®] has an extremely low weight per meter, thus facilitating quick installation. Single *GEWI*[®] Bars are linked with high-strength couplers.

The newly developed restraint system EDS 2.0 was first used in Germany during the construction of the Strelasund Crossing to Ruegen. The photos show the *GEWI*[®] guard rail reinforcement system that was installed in the upper part of the restraint system. At the moment, SUSPA-DSI is working on several other projects where the new *GEWI*[®] Guard Rail Reinforcement System is to be used.

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