DELTABLOC®

Performance Assessment

FlexCorner DB 65S 6m K1 20S

FlexCorner DB 80 6m K1 50S

1 General

The FlexCorner products were developed for the precast concrete systems DB 65S 6m K120S and DB 80 6m K150S. The systems are crash tested and CE-certified according to EN 1317-5 for the performance level T3 and N2. These are freestanding systems where the concrete elements are connected with typical DeltaBloc® tension bar and coupling systems. The safety barriers are used as temporary barriers for work zone protection. For the application in urban areas it may also be necessary to install the barriers on narrow curves or with specific angles up to 90 degrees along the line of the barrier.

To allow for such installations a flexible coupling element is required. With the FlexCorner element DeltaBloc® is providing a solution for narrow curves or specific angles.

2 Description of the FlexCorner element

The FlexCorner is a special coupling element connected on both sides of the tension bar of the barrier elements. For the exact positioning a guide plate, or shroud, is designed which is placed over the concrete element (see figure 1 and 2).

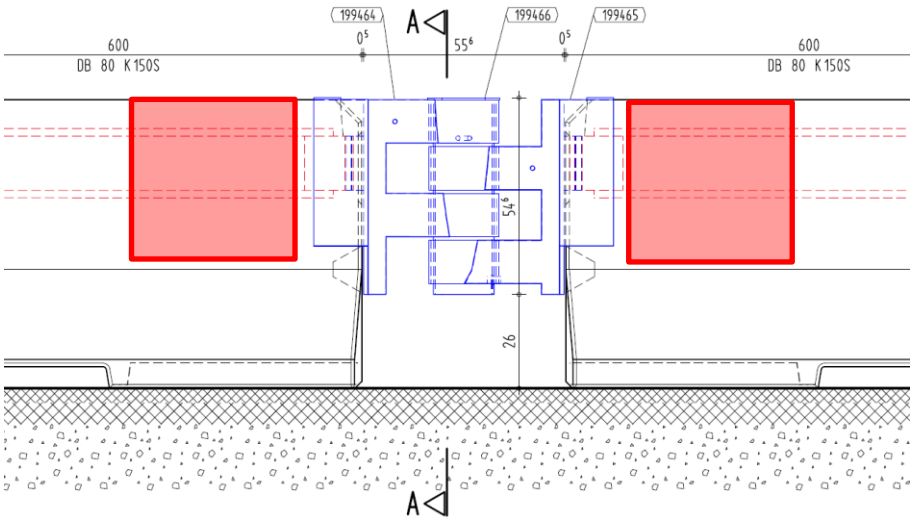

Figure 1: FlexCorner DB 80 6m K150S with redirektion area (red)

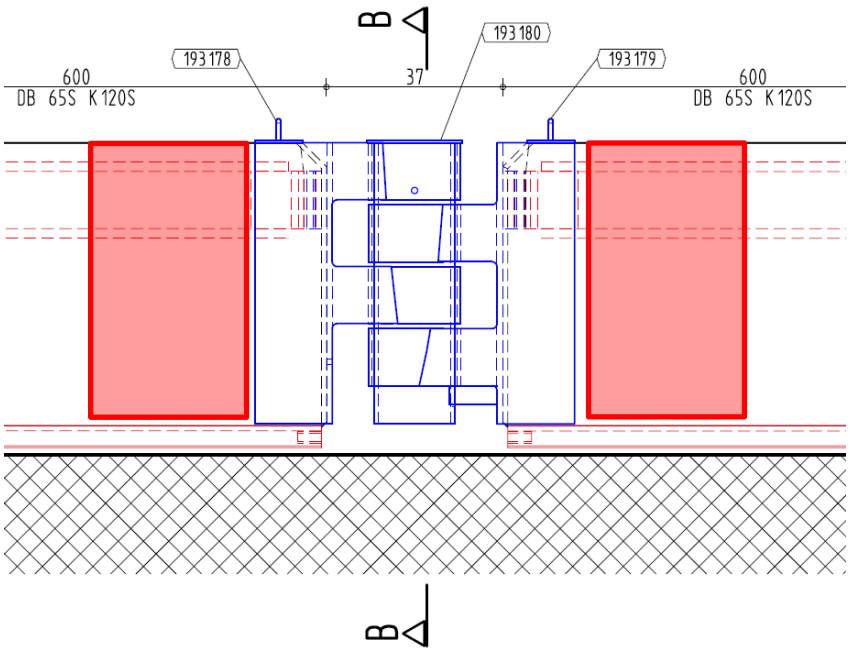

Figure 2: FlexCorner DB 65S 6m K120S with redirektion area (red)

To achieve the transmission of the longitudinal forces through the Flexcorner element, the same coupling profiles and material characteristics as those in the precast concrete barriers were specified. To bridge the gap between the concrete elements, there are specially designed steel plates. These steel plates are shaped in the same geometry as the redirection area (fig.1 and 2 red area) of the barriers. So the gap between the elements is coupled by the FlexCorner element.

All parts of the FlexCorner coupling are hot dipped galvanized according to the same requirements as the standard element coupling - EN ISO 1461. There are two different types, one designed for each system DB 65S and DB 80.

3 Assessement of the perfomance

3.1 Assessment of the FlexCorner element

The tensile forces are transferred in the same way as with the standard coupling. The transmission of forces was calculated based on the material characteristics and thickness. In case of an impact, the chain of elements is stable and will work in the same way compared to the standard coupling.
The shape of the Flexcorner coupling element was designed following that of the concrete barrier. As a result there are no protruding edges or corners in the redirection area of the Flexcorner. A continuous deflection of the vehicle can be ensured.

It should be noted that the FlexCorner element is not a component of the CE-certified safety barrier system. It is a special element for particular applications.

3.2 Assessment of the safety barriers

When the FlexCorner element is installed as part of the barrier system this becomes a specific application which changes the installation to CE non-compliant. In the direct area of the coupling element the system behavior could deviate from the results achieved from the ITT. A higher working width is possible because of the flexible connection. However the same containment level will be achieved. Due to the small gap between the elements at the bottom a slightly different vehicle behavior is possible. Because of the flexible connection and the possible deformation of the system, we do not expect a significant higher ASI value compare to the ITT.
The installation of standard barriers connected to both ends of the FlexCorner, is considered CE-compliant installation. For these connected safety barrier systems the performance can be assessed according the CE-certification.

This ensures that the FlexCorner coupling can be installed in the chain of elements of the safety barrier without significant loss of system performance.

If any further information to the above is required, please do not hesitate to contact us directly.

4 Company information

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