Pedestrian bridge over the Aa

PROJECT DATA

Brief description

Reduction of vibrations at the new construction of a pedestrian bridge by installing a passive absorber

Bridge construction

Steel girder bridge as an under-span truss structure

Request

Guarantee of serviceability and fulfillment of the Comfort criteria according to HiVoSS

Data passive absorber

Moving mass:	1200 kg
Corrosion protection:	According to EN 12944 class C4 high and Execution according to ZTV-Ing
Design life:	50 years

PROJECT DESCRIPTION

Near Münster, a new 35-meter-long steel pedestrian bridge elegantly spans the River Aa. This newly gained public urban space is used by pedestrians and cyclists. The combination of a slender design and low structural damping typical of steel bridges, makes the structure susceptible to vibration from pedestrian excitation.

SOLUTION

To ensure serviceability, the aim is to achieve the highest possible comfort class according to HiVoSS (Human induced vibrations of steel structures). To this end, VICODA developed and manufactured a passive absorber. The absorber was tested in the VICODA test field and the absorber frequency and damping were adjusted. After installation of the absorber, fine tuning was carried out on the finished structure. Vibration measurements were used to determine the relevant natural frequency of the bridge, and thus the absorber received an exact fine-tuning of its properties for this value. This allows the absorber to work optimally and to reduce the vibration level as much as possible in the case of pedestrian excitation.

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