

# CASE STUDY

## BRIDGE CONSTRUCTION

## Footbridge over the Aa

### PROJECT DETAILS

#### Requirements

Reduction of pedestrian induced vibrations on footbridge by installation of tuned mass dampers

#### Material Bearing Structure

Steel

#### Dimensions

35 m span

#### Usage

Pedestrians and cyclists

#### Duration of the project

10 weeks

#### Product details tuned mass damper

Moving mass: 1200 kg, Frequency: 2 Hz

### PROJECT DESCRIPTION

Near Münster a new 35 meter long pedestrian steel bridge spans the Aa in an elegant sweep. The new bridge is used by pedestrians and cyclists. The combination of modern design and the typical behaviour of steel bridges makes the structure prone to pedestrian induced vibrations.

### SOLUTION

In order to minimize the risk of unwanted vibrations and to allow a high comfort level the bridge is equipped with a Tuned Mass Damper (TMD). VICODA manufactured the TMD according to the requirements defined by the structural engineer being in charge of the bridge design. The TMD was tested in the VICODA factory before installation. The TMD frequency and the TMD damping have been tuned to its target values. After installation of the TMD on the bridge the process of fine tuning was carried out. The relevant natural frequency of the bridge deck was determined by vibration measurements. The TMD properties have been adjusted in order to match the bridge characteristics so that the TMD can work most effectively.

