

DAMPERS FOR FOOTBRIDGES / BRIDGES

TUNED MASS DAMPERS, VISCOUS DAMPERS

KGF hydraulika develops, manufactures and installs vibration dampers for footbridges and bridges. According to technical parameters of a particular project (footbridge, bridge or construction), we choose an appropriate solution from two different types of dampers:

- **Tuned Mass Dampers – TMD, Harmonic Absorber**
- **Viscous Dampers – FVD (Fluid Viscous Damper), bridge LUD (Lock-Up Device), STU (Shock Transmission Unit)**

KGF hydraulika also provides technical consulting on damping technologies absorbing undesirable pedestrian- or wind-induced structural vibrations as well as specific adaptation of the dampers to the structural characteristics and requirements of the specific project. On-site installation of damping components is an integral part of each project.

KGF Tuned Mass Dampers (TMD) are installed **on several sites in the Czech Republic and Slovakia**, they are used e.g. on the footbridge over the Jizera River in Mlada Boleslav or in Prague on the Troja footbridge and since 2023 also on the Štvanice footbridge. **KGF Fluid Viscous Dampers** are installed e.g. on the footbridge to Strakonice Castle (type TK10-150) or damping the bicycle bridge over the Elbe River in Celakovice (type TK10-250). Further references are listed on page 4.

Fluid Viscous Dampers on the Footbridge to Strakonice Castle, Czech Republic.



BEST PRACTICE: STVANICE FOOTBRIDGE / PRAGUE

TUNED MASS DAMPERS ON THE STVANICE FOOTBRIDGE OVER THE VLTAVA RIVER IN PRAGUE

In 2023 in Prague, the white Stvanice footbridge was accomplished crossing the Vltava River and connecting two Prague districts Holesovice and Karlín. KGF hydraulika designed, manufactured and in cooperation with the main supplier of this pedestrian bridge, Skanska, installed **two Tuned Mass Dampers (TMD)**. These vibration absorbers significantly reduce structural vibrations of the footbridge (**bridge is made of UHPC concrete**) and increase comfort of pedestrians and cyclists.

Technical parameters

Modell No.	Oscillating mass kg	Total weight kg	Natural frequency Hz
TMDV-1500-1,800	1.500	1.730	1,180
TMDV-1500-2,067	1.500	1.730	2,067

Tuned Mass Dampers on the Stvanice Footbridge over the Vltava River in Prague.



KGF BEST PRACTICE: STEEL FOOTBRIDGE

TUNED MASS DAMPERS ON THE FOOTBRIDGE OVER THE JIZERA RIVER IN MLADA BOLESLAV

In Mlada Boleslav, there is a new footbridge over the Jizera River since 2023, connecting the R&D Centre of Skoda Auto with the area of the „Beautiful meadow“. For this bridge we designed, produced and in cooperation with main supplier, Chládek a Tintěra Litoměřice, installed 8 Tuned Mass Dampers (TMD) with following parameters:

Technical parameters

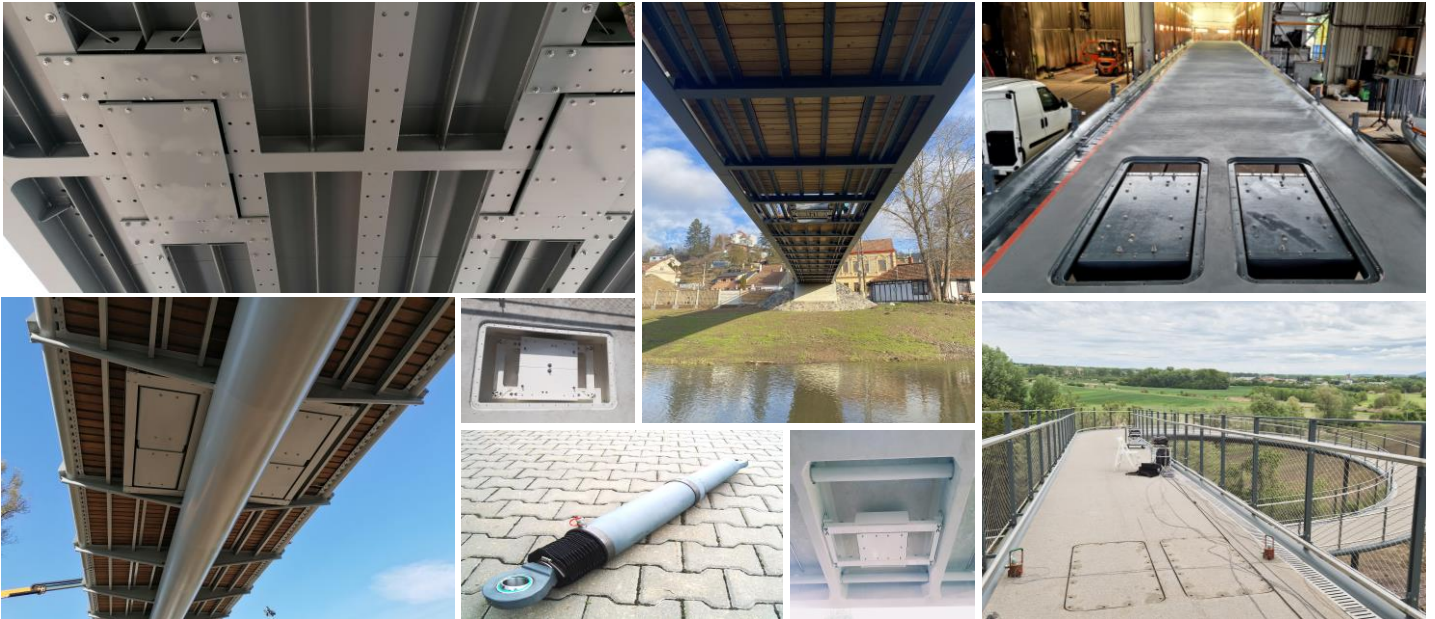
Modell No.	# of pcs	Oscillating mass	Total weight	Natural frequency
		kg	kg	Hz
TMDV-1000-2,015	2	1.000	1.100	2,015
TMDV-450-3,81	4	450	530	3,810
TMDV-400-4,63	2	400	480	4,630

Tuned Mass Dampers on the footbridge over the Jizera river in Mlada Boleslav, Czech Republic.



PROJECT REFERENCES

VIBRATION DAMPERS (TMD, VISCOUS DAMPERS) FOR FOOTBRIDGES



KGF hydraulika has been involved in vibration damping of footbridges and bridges since its foundation. Here, we present a **selection of projects from recent years**. Further project references on TMD (tuned mass damper) and other vibration dampers are **available upon request**.

Project	Oscillating Mass (kg) / Damping Force (kN)	Frequency (Hz)	Damper Type	Year
Footbridge over the Uhlava River, Trestice	1 x 750	2,85	TMD	2026
Footbridge over the Sazava River, Samopse	1 x 750 kg	1,9	TMD	2026
Footbridge over the Elbe River, Decin (Podmokly)	1 x 1.500 kg (H) 1 x 1.500 kg (V) 3 x 500 kg (V)	1,5 1,8 1,45 – 2,4	TMD-H (horizontal) TMD-V (vertical) TMD-V	2026
Footbridge over the Sazava River, Zdar n.S.	2 x 500 kg	2,93	TMD	2026
Footbridge in Sanov, Rail station	4 x 500 kg	1,6 – 3	TMD	2025
Footbridge over the Olse River, Karvina	1 x 500 kg	1,5	TMD	2025
Footbridge over the Litava River, Blucina	1 x 750 kg	2,23	TMD	2024
Stvanice Footbridge, Vltava River, Prague	2 x 1.500 kg	1,8 – 2,07	TMD	2023
Bicycle Bridge, Banska Bystrica (SK)	2 x 1.000 kg	1,706	TMD	2023
Footbridge, Jizera River, Mlada Boleslav (Škoda Auto)	2 x 1.000 kg 4 x 450 2 x 400	2,02 3,81 4,63	TMD	2023
Footbridge in Bilovice nad Svitavou	1 x 350 kg	2,93	TMD	2023
Troja Footbridge, Vltava River, Prague	4 x 1.250 kg	1,62 – 1,85	TMD	2020
Footbridge in Hyskov u Berouna	1 x 1.500 kg	1,73	TMD	2014
Footbridge over the Bečva River in Usti	4 x 500 kN		Viscous Damper	2023
Bicycle Bridge, Elbe River, Celakovice	2 x 100 kN		Viscous Damper	2021
Footbridge in Vestec-Lahovice, Vltava River, Prague	2 x 100 kN		Viscous Damper	2021
Footbridge Stitary over the Swiss Bay at Vranov Dam	4 x 100 kN		Viscous Damper	2019
Footbridge over the Otava River at Strakonice castle	4 x 100 kN		Viscous Damper	2008



Fluid Viscous Dampers on the Bicycle Bridge over the Elbe River in Celakovice, Czech Republic.

TMD in a chamber on the Bicycle Bridge over the Highway in Banska Bystrica, Slovakia.



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