TRM PILING SYSTEMS FACTSHEET

Bridge construction

Rhine Bridge, Austria

+ 36,260 m of piles were installed
+ Pile lengths between 17 m and 25 m
+ Pile type TRM 170, wall thicknesses 9.0 with grouted pile shoe TRM DN 320
+ Compression and tensile forces up to a design value of 550 kN, partially inclined piles up to 23°

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Factsheet **Bridge construction**

The Initial Situation

The Rhine Bridge Hard-Fußach is a **road bridge** over the new Rhine **between Hard and Fußach in Vorarlberg in Austria**. The old bridge was built in 1971 and had to be rebuilt due to the **poor condition of the bridge**, the **increased requirements** and t**he new height requirements of the Rhine** to a flow rate of 4,300 m³/sec.

The **new Rhine bridge** was constructed south of the existing bridge as **a four-span reinforced concrete composite structure with two closed steel box girders**.

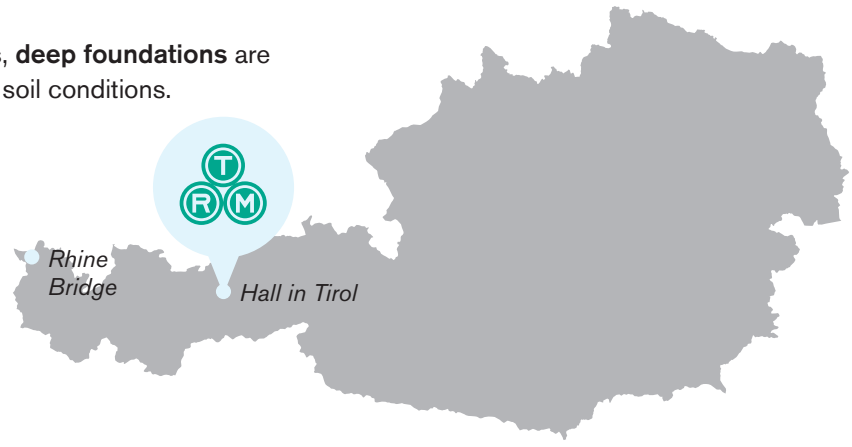
+ Total length approx. 271 m
+ Total width approx. 24.5 m
+ Total column width 255.6 m
(Bridge span dimensions from 50,0 m / 125,0 m / 50,0 m / 30,6 m)
+ Construction time: 28 months

New and old Rhine Bridge

Video animation of the total bridge construction:

LAKE CONSTANCE REGION:
The Lake Constance region belongs to the Alpine foothills and is geologically called the **Molasse Basin**. This region is characterised by **cohesive-organic soils, sandy soil zones** and **thick lake clays up to 50m deep**.

Especially in these areas, **deep foundations** are **necessary** due to these soil conditions.



Factsheet **Bridge construction**

Deep foundation

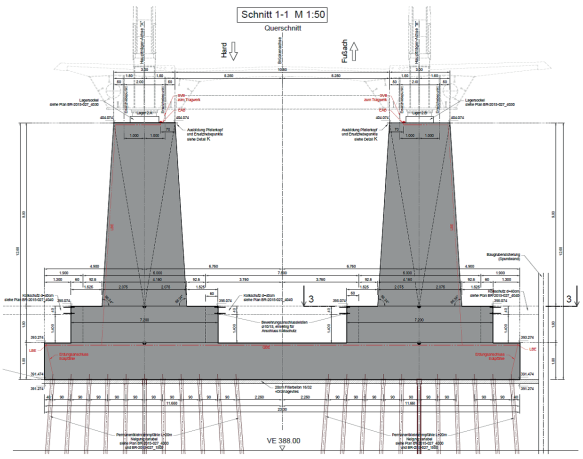
According to the geotechnical report, the ground situation is classified as **soil classes 3 to 5** (artificial fills, cohesive-organic soil zones, sandy soil zones and sea clays) according to **ÖNORM B 2205**. A **shallow foundation was** therefore **ruled out**. Based on existing experience with comparable ground conditions, only grouted piles were considered.

22,750 m of TRM 170/9.0 piles were installed with **TRM DN 320 grouted pile shoes** to support the two main abutments and several bridge piers. A further 13,510 m were installed for the foundations of subways and retaining walls. The piles were designed as **grouted compression and alter-nating load (compression/tension) piles**. A total of **36,260 m of TRM 170/9.0 piles** were installed for the project.

Foundations for bridge insertion

Old Rhine bridge and installation of abutment piles

Pile shoe conical grouted



Abutment with „inclined pile“

Do you have any questions? Our experts will be happy to advise you.

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